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H. G. ROWE
Managing Editor

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THE FRED W. MUTH CO.

PEARL & WALNUT STS.

CINCINNATI, OHIO

GLEANINGS IN BEE CULTURE

OCTOBER, 1918

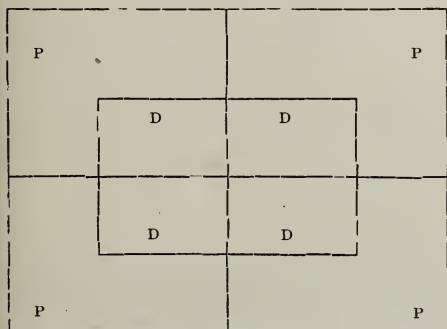
EDITORIAL

AFTER THE matter describing the Demuth plan was in type



More Concerning the Demuth Plan.

and page form we thought of another idea; and that is, to put four three-story hives close together in contact, back to back and side by side, and then place the four Demuth cases in the inner corners of those four three-story hives. In the diagram, D, D, D, D would represent the Demuth cases and P, P, P, P the packing between the Demuth cases and inside



of the four tiered-up hives. This increases the amount of packing and gives the advantage of a larger inner case or 8-frame size instead of 7-frame. It would have the further advantage that the four clusters will be brought together (perhaps by stapling) as closely as possible, thus sharing each other's heat.

To work out the scheme to the best advantage, the four tiered-up hives should stand up on one platform, and should then be covered with a large square of waterproof paper so as to shut off all draft that might penetrate the cracks between the hives. One large cover should go over the whole. This plan would make the cost of packing much less than the scheme of packing four hives in one large outer case, and at the same time give an eight-frame colony an opportunity to build up to ten-frame strength by May 1 or 15 before unpacking. The plan will be more elaborately described in our next issue.

Mrs. Demuth, in our present issue, page 596, calls attention to a very important factor—namely, the ratio of the area of the

walls inside of the packed chamber where the cluster is located to the packing surrounding them. The smaller this area, the less packing, relatively, will be required. It will follow, then, that either of the Demuth plans will require less packing than the regular quadruple case.

The ground plan of packing four hives in a large quadruple packing case as proposed by Wesley Foster, on page 599 of this issue, is most excellent. It has the advantage that there would be less drifting in the spring, because there will be only one entrance on the side instead of two entrances on the side in the regulation way. It would require a slightly larger case, but the advantage is great.



SO FAR as we know, no one has had any difficulty in securing sugar, provided he followed the direc-



The Present Sugar Situation.

tions given in our issue for September, page 521. But those who do not take any bee journal have had all kinds of trouble because they did not know how to proceed. The subscriber to a bee journal has a great advantage over the one who thinks he can not afford to take a bee paper. For the sake of winning the war, will the subscribers of Gleanings kindly loan their copies for September to the local beekeepers who do not have any bee journal, and much less Gleanings?

When the report came in our Minnesota correspondence that the beekeepers who had sold their honey would have to pay over to the Red Cross an amount equal to the difference in the cost of the honey sold and the sugar fed to the bees, we wired Dr. E. F. Phillips asking if there was a ruling to that effect, and received back the message that no such ruling had been issued. In this connection Dr. Phillips feels that, owing to the scarcity of sugar, beekeepers should use as little as possible, and then get more next spring if necessary. He believes that the beekeeper who has bee disease or bad fall stores or who is short of stores, should have a limited amount of sugar; but he also believes that the man who has had a good crop, sells all his honey, has no disease, and then feeds sugar because it is cheaper, is profiteering.

SO SERIOUS a freight-rate situation is threatening honey interests, as a result of



Warning of a Serious Matter.

losses in transit due to careless packing, that a most earnest warning is in order.

That our readers may be entirely assured that such warning is based on facts and experience, we have called upon the A. I. Root Co.'s traffic manager, H. H. Hartzog, to state the present freight situation as regards honey. Mr. Hartzog has spent many years of his life as a railroad traffic man, and speaks out of a ripe experience. Here is what he has to say to Gleanings readers:

In the August issue of Gleanings, page 465, there was printed an article by H. H. Root entitled "A Needless Loss of Honey." On pages 466 and 467 were photographs of honey-containers taken on arrival in Medina, showing large losses of honey due to improper packing.

The A. I. Root Co. and other large buyers of honey are now confronted with even more serious conditions than prevailed two months ago. Consignment after consignment is arriving in bad shape, resulting in enormous losses and many claims entirely out of proportion to the size of shipments. Seventy-five per cent of these must be charged to poor packing. If for no other than patriotic reasons, all this honey should have been properly protected by good, substantial containers before having been offered for shipment.

While it is true that the railroads will have to pay for all loss while in transit, yet, Mr. Shipper of Honey, did you ever stop to think that needless waste is one of the large factors that help to make the high cost of living, and that in the end you are paying dearly for your carelessness? It makes no difference what the commodity may be, freight rates are based on the value of the article, and a certain profit to the railroad has to be realized. If loss in transit is such that the commodity can not be handled at a profit at the rate in force, then a raise in rates results. Every claim presented on any certain commodity is charged by the railroad company against that commodity's earning, and tends to raise its freight rate. Who, then, pays the loss in the end? The shipper does.

The unexpected visit of an inspector to the Root company's office a day or so ago impressed upon us the fact that the enormous increase in claims being presented to the carriers the last few weeks will force the railroads to take new measures. The information obtained by this inspector from personal inspection here of many lots of honey recently received, particularly shipments from the South, will have much to do with determining a higher freight reclassification in that territory in the near future.

The A. I. Root Co. can truthfully say that it has long since passed the experimental

stage in packing or preparing merchandise for shipment, and has found that cheap containers are a failure, and expensive in the end. In reviewing our own shipping records we find claims chargeable to poor packing have been reduced 50 per cent; also, that goods reaching their destination in first-class condition result in a pleased customer. We are alive to the fact that well-packed and prepared shipments are given a severe test while in the hands of the railroads, and that a large per cent of loss and damage is chargeable to them; but we must remember the railroads' trials are many at the present time, and that their facilities are taxed to the limit. With all the faults of the railroads, there is no excuse for failure on the part of the shipper to lend every assistance possible to avoid loss.

Don't ship honey worth 20 cents a pound in old hat-boxes, just because they can be had for nothing. Don't pick up an old pine barrel that some one has discarded, with only one hoop at either end (this has been done), and load it up with a hundred dollars' worth of honey, when you must know that it is likely to go to staves long before it reaches its destination. Spend a little more money and time in preparing shipment. Secure the best case or barrel to be had (all barrels should have eight hoops, four at each end), so you will not have to drive at a snail's pace on your way to the railway station and hold your breath in mortal fear lest the barrel go to pieces before the railroad agent gives you a bill of lading.

Mr. Careless Indifferent Shipper, in addition to a 25-per-cent raise in freight rates, which was effective June 25, 10 per cent of which statisticians tell us was directly chargeable to you, there is now pending a change in classification on honey, brought about by enormous losses largely due to poor packing, which will further increase rates 12 to 18 per cent.

These considerations of increased freight rates on honey due to improper packing should serve to reform the practices of honey-shippers generally.



THE GOVERNMENT'S policy of conservation, looking to the elimination of every possible waste, has now

No More Free Gleanings.

reached all publishers, demanding the use of the very least amount

of paper possible in their business. Accordingly, Gleanings has received express orders to discontinue all complimentary copies and all copies sent to exchanges, and to print no more copies than are strictly necessary to supply its paid subscribers and active correspondents. Even sample copies of our journal are forbidden. So a considerable number of our friends to whom we have been under obligation and so have been glad to send them Gleanings free heretofore, will understand why it cannot be sent free to them after this date.

THE key to successful wintering unlocks the door to success in bee-keeping. If bees winter poorly, the owner will be handicapped during the entire season. A bad start in anything is always a drag clear thru. If there ever was a time when I wanted beekeepers to read carefully what I have to say, it is right now, for most beekeepers winter outdoors. In saying this I do not mean that I know it all; but I do mean that my opportunities for observation have been much greater than those of the average beekeeper. I have traveled extensively over several States during the last few weeks. I have interviewed Government experts and beekeepers who have wintered their bees successfully outdoors. I know why some others have failed. Out of these failures and successes I can give some information that may be helpful.

Before I go into the subject fully I wish to present at the very outset a few of the fundamentals for wintering outdoors—not necessarily in the order of their importance, but approximately so.

1. Strong colonies made up largely of young bees will often winter successfully even when other conditions are not favorable; but far better when they are favorable. Good colonies also imply good queens.

2. An abundance of good stores.

3. Shelter from prevailing winds; and

THE BEST OUTDOOR WINTERING

The Great Importance of Windbreaks and Plenty of Packing in Addition to Strength of Colony and Good Stores

By E. R. Root

this means windbreaks of some sort. These may be in the form of trees, high board fences, or buildings.

4. Packing, and an abundance

of it. While some colonies have wintered on a small amount of packing, it is evident, from the results of last winter that more packing would have been better. In connection with the subject of packing I may say that a large amount of deep snow—deep enough to cover the hives—in a locality cold enough to keep it light and fluffy during the entire winter, is beneficial. If we could always have plenty of dry snow, less packing would be required. When I emphasize the importance of packing I also include bottom packing. I also wish to make it clear that the value of packing will be somewhat lost unless it be applied early, during September or not later than October. Don't put it off too long.

5. A restricted entrance. Many a colony has been lost, yet having all the essentials just mentioned, simply because the entrance was too large, making it impossible for the bees to keep the interior of the hive warm.

Permit me now to elaborate each of the propositions.

No. 1. All the other essentials may be present; but if the colony is weak it may die before spring. It must be strong enough to maintain a bodily heat of somewhere around



Fig. 1.—Out-apiary belonging to R. F. Holtermann, near Hagersville, Ontario, Canada. This yard is located in second-growth timber, and its owner says that the windbreak is so perfect that this yard winters better and produces more honey than any other yard he has. The hives are 12-frame, and are 4 and 5 stories high. This would make 48 and 60 frames respectively, or the equivalent of 6-, 7-, and 8-story hives, if the bees were in an 8-frame hive. Dr. Miller, in *Stray Straws* in this issue, believes that such skyscrapers are of rare occurrence.

57 degrees F., in the center of the cluster. Unless this cluster is large enough the bees will be compelled to raise the temperature by activity. This activity in midwinter is liable to start breeding too early in the winter, with the result that the colony will die with dysentery in December or January. That the cluster be made up of young bees is very important; and in order to get these young bees the bees should have a good queen, and, in addition, be given stimulative feeding in August or September, providing no honey is coming in from the fields. Many localities have a sufficient fall flora so that breeding continues into cool weather. If the locality does not already have a fall flow on which the bees can rely, the whole apiary can often be removed to advantage to a locality 10 or even 20 miles away where there is such. During this year of scarcity of sugar, such a procedure may not only be necessary but patriotic as well.

It is impossible to get good colonies for winter without a good queen, so that whenever mention is made of a good colony for winter it implies a good queen and probably a young one. If I could have my way, I would have every queen in the apiary not more than a year old. A queen two years old may not be inclined to lay in August and September. A queen that will not lay during these months under the stimulus of a natural honey flow or feeding should be replaced at once.

2. One reason why there was such a heavy mortality last season was because beekeepers were not able to obtain enough sugar last fall to supply the deficiency of food from natural sources. It is well known that colonies wintering outdoors require

more stores than those wintering indoors. It would be well to figure on about twice as much. Dr. E. F. Phillips of the Bureau of Entomology recommends over 40 pounds for a two-story colony. A single-story colony should have anywhere from 25 to 30 pounds, and more will do no harm. Indeed, it may be a splendid investment. When I say "good stores" I mean sugar syrup or good table honey, such as clover, basswood, alfalfa, or any light honey that sells well in the open market for table purposes. Sugar syrup, if fed early enough, is an almost perfect food during cold, non-flying periods of the winter; but when bees are beginning to fly, then natural stores are unquestionably better. Honey, besides containing more or less pollen, has other food elements that apparently give the colony in the spring a bigger boost than sugar syrup only. Sugar syrup for indoor wintering, during the dormant period, on account of no possible chance for cleansing flights that outdoor bees get, is probably superior to any honey that the bees may have. It is less conducive to dysentery. I am frank to say that I prefer sugar syrup for cellar wintering; but I would never go to the expense and trouble of taking out good honey stores and replacing them with sugar, especially when sugar is so scarce. Moreover, I prefer natural stores after the bees are put out in the spring.

3. I have placed shelter or windbreaks third in importance, not so much because packing is less important, but because the value of shelter from prevailing winds is generally underestimated. I ran across some beekeepers who leave their apiaries out in the open, exposed to wind from all direc-



Fig. 2.—An outyard belonging to the president of the National Beekeepers' Association, David Running of Fillion, Mich. The windbreaks of young timber on three sides protect these bees; and, as will be seen, it is prosperous. The editor photographed the skyscraper that appeared on the September cover of *Gleanings* in this yard. This is all 8-frame. It will be observed that there are other skyscrapers, proving that, with good bee management and good location, these skyscrapers are not of rare occurrence. (See p. 485.)

tions, winter after winter. They say (or rather think) the bees have wintered well; but I am positive that if those same apiaries were surrounded by a good fence, a shelter of trees, or buildings, the colonies in the spring would not only be stronger but would have more stores remaining in the hive.

I have run across scores of instances in my travels where bees in single-walled hives properly sheltered from prevailing winds have wintered comparatively well. I have also run across scores of instances where colonies in double-walled hives out in the open have wintered very poorly, all because of the lack of a screen to shut off the winds. Take the case of our own houses. It takes much more coal to heat a house with a freezing temperature and a high wind than it

closure in a piece of woods with a south exposure. (See Fig. 2.)

The next best protection is a shelter of buildings. The ordinary back lot in a city or town, with dwellings, barns, outbuildings, fences, and hedges or shrubbery in all directions, is usually an ideal place to winter bees.

In many cases beekeepers will have to make their own windbreaks, unless they can afford to wait for a row of evergreens to grow, and that takes from 10 to 20 years. A high board fence is a good windbreak and easily built. The boards in the fence should not be placed tight together. Experience proves that it is better to let the wind filter thru slowly than to strike a solid surface and glance upward and then shoot downward on some row of hives inside. The fence



Fig. 3.—This apiary belongs to Floyd Markham, Ypsilanti, Mich., secretary of the National Beekeepers' Association. This yard is surrounded by a fence, small trees, buildings, and is on a slope of ground that faces the south. From the standpoint of windbreaks it is ideally located; and, altho the season was rather poor, it will be seen that the bees were doing things.

does on a still day with a zero temperature. Taking everything into consideration, if I had to choose between colonies packed and colonies in single-walled hives sheltered, I would take the latter. As a matter of fact, I much prefer to have both packing and shelter.

Unquestionably the best form of windbreaks is second-growth timber, trees with trunks as large around as a man's arm, and 20 to 30 feet tall. R. F. Holtermann told me last summer that the yard that gave him the best results is the one located in the slashing where he cut out a little clearing. A photograph of this yard, with 12-frame supers piled up one on top of the other, is pretty good proof of the statement. (See Fig. 1.) The next best windbreak is an in-

shown in Fig. 9 would be much better if the boards were two inches apart. The ideal fence is one made of ten-inch boards placed about two inches apart. It is more practicable to nail the boards horizontally, as shown in Figs. 4 and 5. In this case the posts should be set every six or eight feet apart, depending on whether the boards are 12 or 16 feet long. The fence should not be less than 8 feet high. Some prefer to make a fence like that used by R. F. Holtermann. (See Figs. 6, 7, and 8.) The boards are nailed vertically on cross-pieces fastened to the posts. If the fence is more than ten feet high, it would be more practicable and perhaps cheaper to use this style.

Believe me, dear reader, do not get the notion into your head that, because you have

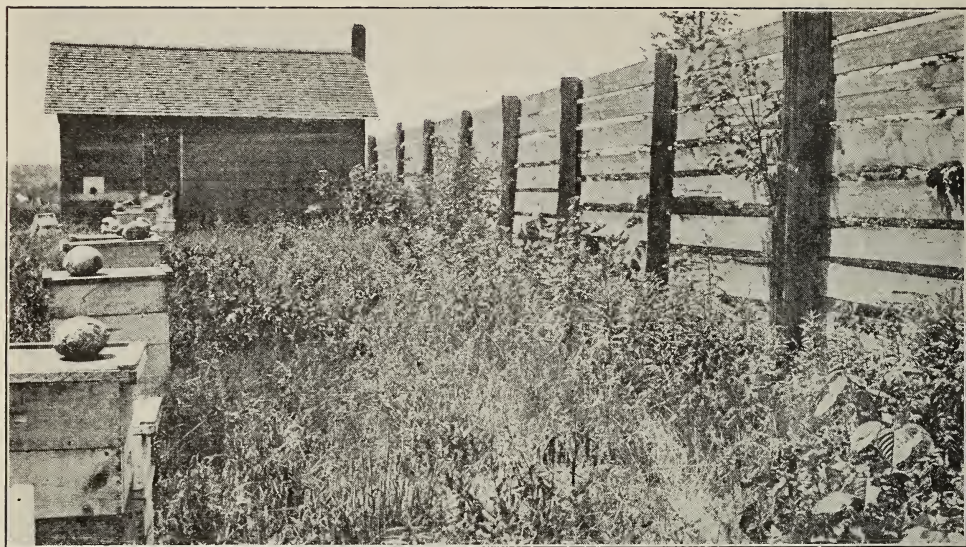


Fig. 4.—Fence windbreaks put up by Pete Sowinski, at Bellaire, Mich. "Pete," as he is familiarly called, is one of the best beekeepers in the country, and he believes in cellars of the David Running type, as described in our last issue, and that, of course, means good wintering. He is also a firm believer in windbreaks. This is the best-constructed fence for inclosing beeyards that we have seen anywhere. It is easy to make, and strong.

wintered bees out in the open, it is good policy. Because one man 80 years of age boasts that he has drunk liquor every day of his life it does not prove that such a policy is safe. Because one man here and there winters in the open it does not prove that it is wise. Invariably, the colonies (even tho packed) that die in our locality are the ones exposed to a direct windsweep.

If there is anything the importance of

which I feel like hammering into beekeepers, it is the importance and value of windbreaks; and I shall continue to harp on this subject, probably, all winter. I am not guessing. If there is anything that I feel **I absolutely know**, it is that windbreaks are a splendid investment—an investment that will pay a big dividend year after year. They are not only necessary during winter but also during fall and spring.



Fig. 5.—This shows a more general view of the apiary and windbreaks of Pete Sowinski, as mentioned in Fig. 4. The season proved to be rather light.

4. If there ever was a winter that emphasized and proved the importance of packing, and a lot of it, it was last winter. If I could take some of these no-packing fellows, or those who believe in limited packing, with me over the trips where I have gone during the last two or three months, I think I could convince them that they are making a bad mistake by persisting in the policy of wintering or trying to winter with limited packing. Wrapping hives in paper is little better than nothing. But, fortunately, many of these no-packing or limited-packing chaps do not need to be shown, for they have already been "shown." They lost anywhere from 80 to 95 per cent of their colonies last winter.

Granted that some packing is necessary, how much must we have? I am convinced

large amount of packing—not less than 6 inches at the sides and ends, 4 at the bottom, and 10 at the top. While that amount seems to be excessive, it costs but little more to make a case large enough to give the necessary amount of packing.

A good many of our best beekeepers think that bottom packing is not only unnecessary but expensive. It is decidedly so, says Dr. Phillips, with the ordinary kind of winter entrance. But when the entrance is reduced to a single round $\frac{3}{8}$ -inch hole during the coldest part of the winter, bottom packing is a necessity, says Dr. Phillips. I shall refer to entrances later.

Ira D. Bartlett of East Jordan, one of the best beekeepers in Michigan, was one of the first, if not the first, extensive honey-producer to use four-hive packing cases, now rec-



Fig. 6.—This is another outyard belonging to R. F. Holtermann, as mentioned in Fig. 1. Figs. 6 and 7 show the form of windbreak adopted by Mr. Holtermann. The fence is 12 feet high, and the boards are not nailed close together. Both figures show that the skyscraper is not a rare bird. If these 12-frame hives could be converted into 8-frame hives, they would need a prop to keep them from tipping over. It pays to have windbreaks, says Mr. Holtermann; and the proof of the statement is here shown.

that A. I. Root, away back in the late 70's and early 80's, was pretty nearly right when he constructed his old two-story chaff hive that provided for 5 inches of packing on the sides, 10 inches on the top, and 2 on the bottom. Indeed, Dr. E. F. Phillips told the beekeepers at the Ohio field meet that A. I. Root, who was then sitting before him, had built the best winter hive that was ever made. Then he went on to state that in later years the mistake was made of providing improved (?) hives with less packing, with the result that they had taken an enormous toll of the bees of the country.

Under Dr. Phillips' directions a series of experiments have been conducted at the Government apiary showing the value of a

ommended by the Government bee experts. In this issue there is shown (See Fig. 9) an illustration of some of the original Bartlett hives made over 25 years ago, and which are now coming to be used very generally by some of our best beekeepers in the Northern States for wintering. R. F. Holtermann and numerous other Canadian beekeepers have since adopted the same general scheme of wintering. The case takes in four colonies, leaving from 4 to 6 inches of packing around the hives, 3 or 4 inches of packing on the bottom, and 8 or 10 inches of packing on the top. It is certainly cheaper to put four hives in one case than four hives in four cases. Moreover, when the four hives are placed together in contact it is necessary to afford



Fig. 7.—This is a view of another Holtermann yard, showing the same principle of wind protection as shown in Fig. 6.

protection to only one side and one end of each hive. In Fig. 10 we show the scheme of packing four hives in a case advocated by Government experts. Dr. Phillips recommends wintering each colony in two hive-bodies instead of one. In other words, he recommends having strong colonies placed in two ten-frame Langstroth hive-bodies, four of such double-story colonies in each case.

The ordinary packing case of this description will run from about \$2.50 to \$3.50 per colony, or from \$10.00 to \$15.00 per case, the beekeeper buying his own lumber at the mill and making up the cases himself. Even a piano-box new now costs the factory making it from \$10.00 to \$12.00. While the expense of the big case seems to be a large outlay, yet when it is remembered that a good colony in the spring is worth four or five weak

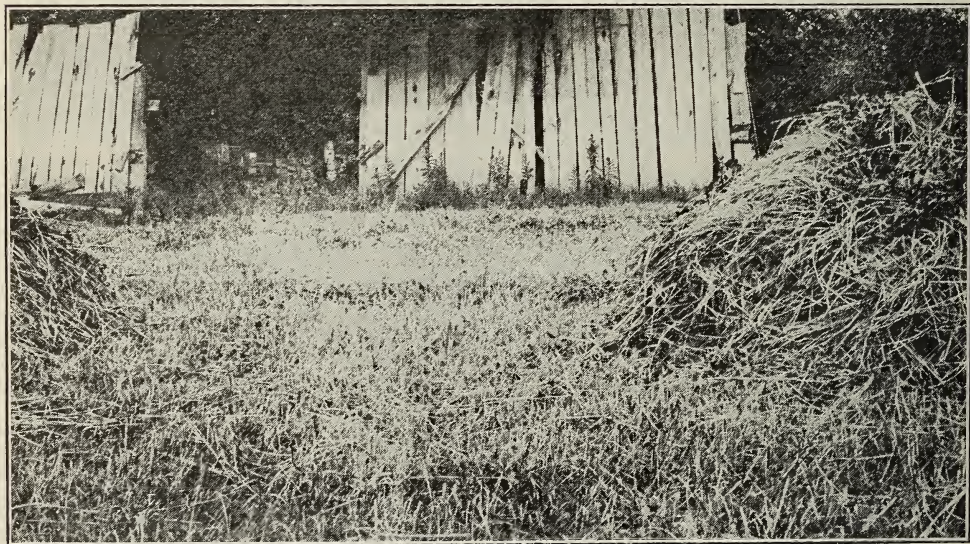


Fig. 8.—This shows an exterior view of one end of the Holtermann windbreaks. Mr. Holtermann has a roadway running directly thru the center of his yard. A gateway is provided at each end, connecting with this road. This makes it possible for Mr. Holtermann to run his automobile truck thru the center of his yard, thus eliminating the carrying of heavy supers; and they are heavy, because they are 12-framers, running as high as 100 pounds to the super. During the spring and winter the big gates are closed.

ones, and that one good colony may gather \$25.00 worth of honey while the weak one may not gather more than \$2.00 worth, it would seem that the expense of the case is justified. The big cases ought to last for 10 years and hence the cost should be divided by 10, making the price per colony 30 cents a year.

One difficulty we have had with these quadruple cases has been drifting in the spring. On the first flight day the bees of one colony drift over to the colony alongside it, with the result that one colony will be too weak and the other too strong. When colonies are individually packed, each hive on a stand by itself, this difficulty does not occur.

Last winter we used with a great deal of satisfaction the Demuth inner winter case on a stand by itself. This costs only about a fourth per colony of the cost of the quadruple case per colony and yet gave us results that were fully equal to and in many cases better than we secured from quadruple cases, on account of the freedom from drifting. An ordinary ten-frame colony in September and October is squeezed down to seven of the best frames with stores; these are then stood on end in the Demuth case. This case of seven frames is placed vertically in three tiered-up ten-frame Langstroth hive-bodies. Packing material is poured in between. The hive-bodies act as a protecting case; and if one is producing extracted honey, he will have enough extra supers to house every colony he has, without any additional outlay. The inner Demuth case can be sold for about 75 cents, which, on the

basis of its lasting for ten years, costs $7\frac{1}{2}$ cents a year.

Figs. 11 and 12 give an idea of the Demuth principle; for it must be understood that Langstroth frames, instead of hanging in the hives in the usual way, are stood up on end in the case. The space above allows for giving a feeding of candy to make up for any shortage of stores, and at the same time allows room for the cluster to expand after the young bees begin to hatch out from the seven frames. By turning the frames up on end it converts the Langstroth frames into deep ones for wintering. Many good authorities have taught and still believe that a deep frame is better for wintering than a shallow one. I am convinced that a tall shaft, nearly square or round, as in a bee-tree, is a better shape for wintering than a shallow oblong brood-nest such as we find in the Langstroth hive. The Demuth case is similar in shape to the old box hives that often would surpass modern Langstroth hives for wintering. A cluster of bees in a tall chimney-like inclosure can fill the whole space; and when it is very cold the bees can crowd up into the top where all the warm air is. If there is a cake of candy on top to prevent starving at such times, the bees are in the warmest part of the inclosure where there is plenty of stores ready at hand. The scheme worked as pretty in practice last winter as in theory. It does away with all troubles of drifting, and, moreover, only requires half the stores of the two-story colony in the big cases. In these days of scarcity of sugar this is no small item.

While this Demuth method of putting up

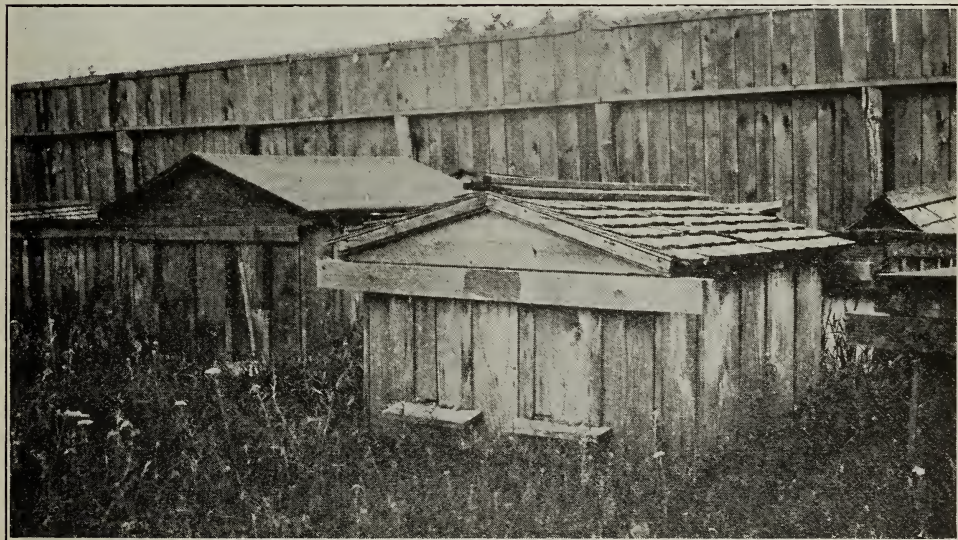


Fig. 9.—This represents a corner view of one of the outyards belonging to Ira D. Bartlett, East Jordan, Mich. These four-hive large packing cases are at least 25 years old. Mr. Bartlett was one of the first to use this form of outdoor wintering on a large scale, if we are correct, altho quadruple hives of a similar type are older. This same packing case is elaborately described in the A B C and X Y Z of Bee Culture. The high board fence shown in the background, says its owner, is too much of a good thing. It is too solid.

In his opinion the fence would be better if the boards were spaced a little ways apart.

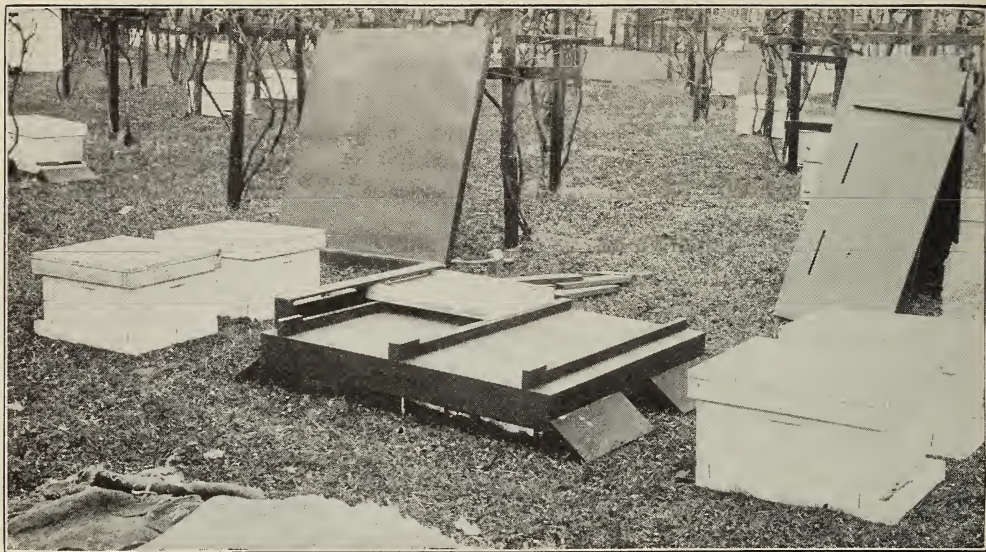
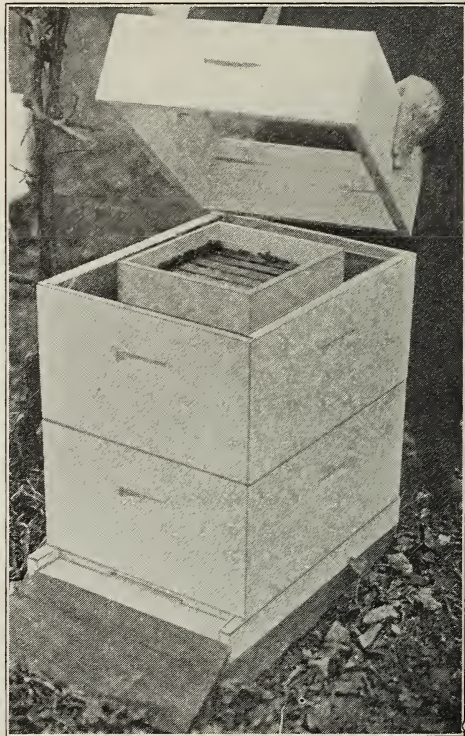
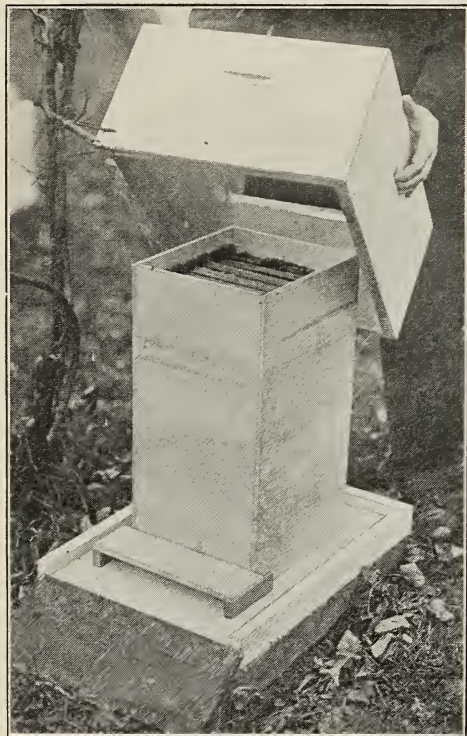


Fig. 10.—This is a general scheme for wintering four colonies in a large case. It consists of a platform on which are mounted transverse cleats to hold the four hives when placed back to back and side by side in close contact. The crosscleats should be wide enough to allow about four inches of packing between the bottoms of the hives and the platform beneath. Four panels then surround the four hives; and when in place they leave six inches of packing on the sides and ten inches on top. When the hives are two story in place of one, the four panels must be correspondingly deeper.



Figs. 11, 12.—These represent the scheme of wintering bees on Langstroth frames stood on end in an inner case. The hive-stand supporting the bottom is packed with leaves, to give bottom protection. The inner case is then put on top of the bottom-board when two regular hive-bodies and a super used during the summer are tied up around it as shown. A bridge connects the inner case with the outside of the hive to provide for entrance. Packing material is poured in between the inner case and the outer one.

bees for winter, in addition to the saving of stores, has the merit of cheapness, it requires attention on the part of the beekeeper in spring to give the bees more room. To do this necessitates unpacking them at a time when they ought to be warmly housed. The scheme of wintering a colony in double stories, four colonies to the winter case, has the decided advantage that the bees will have plenty of room for breeding up in the spring, and plenty of stores without additional care in the spring; and by the time they are unpacked in May there may be a colony with 13 or 14 frames of brood, bees occupying both stories, ready for any early spring harvest on fruit bloom, dandelions, or any other source. The large winter packing case, Dr. Phillips claims, practically eliminates spring management.

The objection to the large double-story four-colony winter case, besides the expense of \$3.00 per colony, is the amount of stores required—not less than 45 pounds to the colony, Dr. Phillips estimates; and when the beginner can get from 20 to 25 cents a pound for his honey, he wonders whether single-story winter cases would not be cheaper. If one is short of stores, and the colony not extra strong, the Demuth plan is much to be preferred. The expense of it is so light that any beekeeper who would attempt to winter his bees outdoors without any protection or packing, and then complain that his bees do not pay, or that he had had a poor season, ought to fail, and he generally does.

After a careful consideration of these different plans of wintering, we may say that

for weak colonies, the Demuth plan is greatly to be preferred. For those supplied with an abundance of stores, (if the price does not seem prohibitive) Phillips' plan would perhaps prove satisfactory. But this year the great majority of colonies will come under neither one of these heads and should therefore under present conditions be wintered in the cellar, if a suitable one such as described in the September Gleanings is available. If not they should be wintered in one-story winter packing cases in localities where the temperature frequently hovers around zero. In places somewhat warmer the standard double-walled hive will do very nicely, providing the clustering space is reduced to seven or eight frames. The vacant space on the sides should be filled with packing. This can best be done by using a division-board on the more exposed side of the hive and filling the space back of it with leaves.

In the next issue we shall have a discussion on the subject of entrances. There have been some new developments showing the value of a small one-hole entrance (always with the bottom packing)—a hole not larger than $\frac{3}{8}$ or $\frac{1}{2}$ inch for the cold part of the winter. In the fall or spring there are provided 2, 3, 4, or even 5 more holes to give extra ventilation. Be it remembered that the small-hole entrance will prove absolutely fatal to the bees without the use of bottom packing. The scheme of having a wide slot for an entrance for outdoor-wintered colonies is utterly wrong, both from the theoretical and practical standpoint, as we hope to prove in our next issue.



THE quiescence, or slow living, by means of which bees may be able to span the broodless period of winter is usually present to the utmost degree during the milder weather of October and November in the Northern States. This extreme quiescence occurs after the last of the brood has emerged, and after all the recently emerged bees, as well as the older ones, have had ample cleansing flights, but before cold weather begins. If the degree of quiescence sometimes present at this season could be maintained thruout the winter, we would expect the bees to wake up the next spring, still possessing the full vigor of their youth and amply prepared for the burdens of their spring toil. The remarkable inactivity of autumn, however, is an unstable condition which is easily upset by various disturbing factors. The two giant disturbing factors are inferior stores and low temperatures. Either of these disturb-

WITHIN THE WINTER CHAMBER

Conditions Needed to Keep the Hive Properly Warmed and to Prevent the Escape of All Important Heat

By Belva M. Demuth

able degree at the same time, they make quick work of their destruction. Winter activity resulting from poor stores can be prevented by feeding, after brood-rearing ceases, 10 pounds of good honey or a thick syrup made of granulated sugar (two or two and a half parts sugar to one part water) to each colony, regardless of the amount of stores already in the hive. (See page 530 of September Gleanings.) In the North this feeding should be done before the middle of October.

ing elements, when working alone, slowly consuming the vitality of the bees, is bad enough; but, when both of them are present in considerable degree at the same time, they make quick work of their destruction. Winter activity resulting from poor stores can be prevented by feeding, after brood-rearing ceases, 10 pounds of good honey or a thick syrup made of granulated sugar (two or two and a half parts sugar to one part water) to each colony, regardless of the amount of stores already in the hive. (See page 530 of September Gleanings.) In the North this feeding should be done before the middle of October.

Winter Activity in Response to Low Temperatures.

In Bulletin 93, U. S. Department of Agriculture, we find a statement, with definite temperatures specified as follows: "At the temperature at which other insects become

less active (begin hibernation), the honey-bee becomes more active and generates heat, in some cases until the temperature within the cluster is as high as that of the brood-nest in summer. To sum up, when the temperature of a colony of undisturbed broodless bees is above 57° F. and below about 69° F., the bees are quiet and their temperature drifts with the outer temperature; at lower temperatures they form a compact cluster, and the temperature within it is raised by heat generated by the bees.'

This is certainly a strong argument in favor of better protection against the cold of winter than most of us have been giving our bees. When we realize that they maintain a temperature never lower than 57° F. and are quiet and satisfied at temperatures between 57° F. and 69° F. (temperatures almost as high as that which we need in our living rooms), we can understand the need for a better housing of the bees during cold weather. When we remember the bitter cold and high winds of last winter, and how it was necessary to burn tons and tons of coal to keep our homes even above 60° F., we wonder that the bees were able to survive, when wintered out of doors, with muscular activity the only means of heating their homes. The month of October is pre-eminently the month for packing the bees that are to be wintered out of doors.

How Heat Escapes from the Hive.

The heat that is generated by the bees can escape from within the hive by two avenues only. (1) It may pass thru the walls of the hive by the comparatively slow process of being transmitted from particle to particle of the material forming the walls until it reaches the outer surface where it is either transmitted to the air and carried away or lost from the outer surface by radiation. (2) It may be carried out of the hive by air currents thru the entrance or other openings. The air currents may be caused by the wind blowing into the entrance, sweeping around and over the cluster, then out some other opening or another part of the entrance; or they may be weaker currents, set up within the hive because of differences of temperature there. Winter cases and packing prevent heat escape in the one case; contracted entrances, in the other.

Conditions Influencing Loss of Heat Thru the Walls.

Physicists tell us that the rate at which heat flows thru a solid depends upon four things only, which when put into terms of a double-walled beehive are: (1) material used for packing, (2) thickness of packing, (3) area of walls, ceiling and floor of the inner chamber, (4) the difference in temperature between the inner and outer surfaces. It follows, therefore, that we can decrease the loss of heat thru the walls by using better material for packing, by increasing the thickness of the packing, by decreasing the size of the inner chamber, and by locating the apiary in a sheltered place to keep the wind from cooling the outer

surface of the winter cases rapidly, and, at the same time, where the sun can shine on them to reduce or stop the outward flow of heat while the sun is shining.

Packing Material.

The material for packing should not be too coarse, such as straw, coarse planer shavings or forest leaves thrown in loosely, because such material permits currents of warmer air to rise and escape from the packing, thus carrying the heat away more rapidly. Also high winds may force air currents thru cracks in the outer case into and entirely thru such coarse material, rapidly carrying away the heat. Such material as wheat chaff, sawdust, fine planer shavings, or crushed and finely broken forest leaves, are perhaps about equally good for retarding the flow of heat. Sawdust will absorb and transmit moisture, if the winter case leaks.

Effect of Size of Winter Chamber.

Years ago when chaff hives and chaff division-boards were more commonly used, many beekeepers reduced the winter chamber to fit the cluster, filling the remaining space with these close-fitting chaff-packed division-boards. Present-day management is apparently going in the opposite direction, some beekeepers even using two hive-bodies for the winter chamber. The danger here is that some may increase the size of the winter chamber without at the same time increasing the thickness of the packing. Since every square inch on the inner surface may be considered as an avenue for the escape of a certain amount of heat, it follows that, if we double this surface without changing other conditions, we double the rate of the loss of heat thru the walls. To secure the same degree of protection when the surface of the inner chamber is doubled, it is necessary to double the amount of packing.

The Entrance.

The movement of air currents thru the entrance is influenced by its size and shape and the presence or absence of other openings in the hive. If there is but a single small opening, there is little opportunity for the wind to blow thru it into the hive, since air cannot enter unless air from the inside can escape at the same time. When the usual long, narrow entrance is used, wind may blow into the hive at one side of the entrance and force the warm air out at the other. A single small entrance, together with sealed covers, should prevent almost entirely the conveyance of heat thru the entrance by air currents.

The ideal condition toward which to strive is a winter chamber which fits the size of the cluster, or rather a cluster big enough to fill the winter chamber, so that the cluster touches and warms its walls, and these walls so well protected that it is not necessary for the bees to draw away from them in severe weather to form another wall of living bees as an insulating crust for the cluster.



CONVERSATIONS with DOOLITTLE

Caring for Comb Honey—How to Have in Best Condition for the Market

"Will you give us something further regarding removing comb honey from the hive, storing the same, and getting it ready for market? Remember many of the readers of *Gleanings* are not up in these things as are you old fellows who have kept bees for from 30 to 50 years."

A crop of fine comb honey may be greatly lessened in value by lack of knowledge or care in the harvesting, storing, and preparing for market. What I shall write will probably contain nothing new or startling, but a repetition of the things that some need to hear often to secure the best results when working for comb or section honey. After the honey harvest has been on a week or so the supers should be looked after, and, where the sections in any are capped over, they should be taken off and supers of empty sections given, if more room is needed. To have the honey in the best shape to sell, it should be removed from the hive as soon as it is capped over. The beautiful cappings are then white and very inviting to the eye. Remember that looks has very much to do with a fancy article of section honey. As the white-honey harvest in the Middle and Northern States is secured from white and alsike clover and basswood, less surplus room should be given as it nears its close, for by the contraction of space more sections will be completed than in the larger spaces, and we desire to get all the finest comb honey possible. At the close of surplus gathering from the above sources, all the supers should be removed.

For the best results in storing, a warm, dry, and airy room is essential. This room should have two windows so situated that the sunlight can be admitted, and a good circulation of air. The building should by no means be in the shade, for the hot sunshine and dry air of summer will, when in motion, do much to still better ripen the honey. The building should be one foot or more above ground and have a wood floor, and be so situated that the air can freely circulate all about underneath, so no dampness shall come from the earth below. Some suppose that the floor to a honey-house should be of concrete or cement of some kind, but this is a mistake. During the night, such a floor takes on the temperature of the ground underneath, and, when the morning sunshine and warm air strike this cool or cold floor, the concrete takes on a dampness, or begins to "sweat," as it is often termed. This in a great measure will overcome the warm, dry air we have planned to let in, and our nice combs of honey will soon begin to

"sweat" also, so that the nice white cappings will take on a watery appearance, which will be very detrimental to the looks. A strong rack should be made on which to place the honey, and preferably on each side of the room so that an alley-way can be had, as it will least interfere with the working room. This rack should be one foot above the floor, so the air may freely pass beneath it. A row of supers should first be put on, and on top of these, at the front and back, strips one inch square should be placed; and this should be continued in the same way until the space is filled to within a few inches of the ceiling, if necessary. All of the fancy should be stored in a body, No. 1, 2, and the dark the same, so that we need not have the different grades all mixed up when we come to getting it ready for market. At the time the honey is taken in, place it to one side, and the next morning, when it has cooled, clean off the propolis and wax from the supers and sections at top and bottom, so far as can be, and tier them up on the rack in their proper places. Storing the honey in this way, the warm air circulates freely all thru and between the supers and sections. The honey is thus left till time to prepare it for market. This is generally about the first of September.

To handle and case comb honey properly requires much care. The delicate combs are easily cut or bruised, and a little carelessness will result in leaky and dripping honey. The fancy honey is usually cased first, and the case labeled, "fancy." That not so white in comb is styled No. 1. That a little colored by the bees, and combs not so complete, is called No. 2. Then the buckwheat or fall honey may be cased in the same way as to grade, but it is very often put all together and styled as "dark." The honey in the cases of each grade should be uniform in looks and quality. The honey next the glass in each case should be no nicer than that in the center part. In other words, it should be cased so that to see the combs next the glass, as it stands in our honey room, the store, or commission house, may be an evidence of the quality of the whole case without further inspection. When honey is so put up, the purchaser, whether grocer or consumer, can take it and handle it comb by comb with satisfaction in selling or using. Every beekeeper has his own reputation to build or hold. If he expects good sales in the future, his goods should be as represented by the honey in full view in each case. The partially filled supers taken off at the close of the white harvest should be looked over, and all complete sections cased for sale in the grade best suited for them. Sections only partly filled should be massed in other su-

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pers and returned to the hives at the opening of buckwheat or other fall flowers. At the "wind up" of the season, some of the partly capped combs may be sold to those who call and can see them, and prefer such at a lower price. Those not sold, or the whole of these partly filled sections, may be carried over to good advantage for "bait sections," as such are very useful in getting the bees at work in the sections at the very earliest opening of the flowers producing our surplus the next season.

Borođino, N. Y.

G. M. Doolittle.



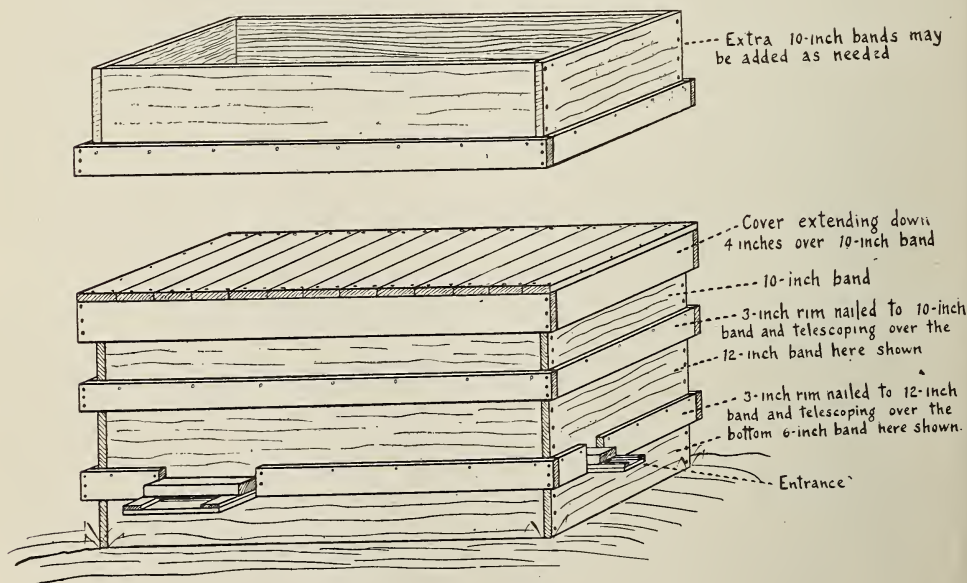
WINTER PROTECTION in the ROCKIES

How It Can be Accomplished at Comparatively Small Cost

There has been quite an awakening among Colorado beekeepers as to the need of winter protection, caused by the heavy losses sustained in the past, and the fact that the Department of Agriculture has, thru its bulletins and the extension work done by C. E. Bartholomew, carried on quite a campaign of education. Last winter a considerable number of Colorado beekeepers gave their colonies added protection in a variety of ways. Some simply covered the hives with a paper cardboard box, in which they packed straw or shavings between the box and the hive. Others protected their colonies in a more elaborate fashion by putting together the winter packing cases known as the Holtermann case. One apiary was pack-

ed single, each colony having a shell around it which was filled with straw, and a cover over this shell. Whatever method was used seemed to give fairly satisfactory results. One of the difficulties was that the beekeepers did not realize the necessity of packing their colonies early. In an apiary belonging to my brother, which he packed last November, the disturbance which the bees received while being packed started brood-rearing, and this continued thru quite a large part of the winter, and so weakened the colonies. However, last spring the few colonies which did breed during the winter seemed to be in pretty fair shape, altho not so strong as those that did not do any breeding.

The principal point that I notice in winter packing in Colorado is that the packed colonies have more honey by 10 to 15 pounds than those left in the open. In fact, it is a detriment to leave the hive full of honey when packed for the winter. It appears that it would be better to take away two or three of the combs of honey, replacing these with good empty brood-combs. In this way the colony will be able to maintain a more comfortable disposition of the bees in the brood-nest. The colonies that were packed last winter were also more uniform in strength; in fact, there were no weak colonies at all except those that had poor queens or had contracted foul brood. The protection of the packing case against molestation of bees from cattle, horses, sheep, pigs, etc. is not one of the least important features of the protection of bees. I believe this one



Corner View of Case
Chaff is used for packing material.

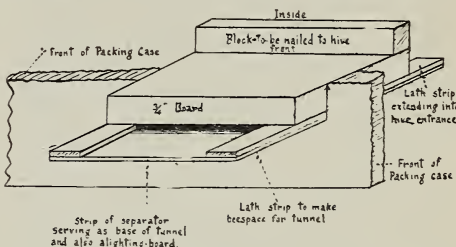
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item will make the protection case a paying proposition.

Dr. Phillips advocates the necessity for wind protection. While it is doubtless true that there are days when the temperature is quite low, and when the wind is blowing rapidly enough so that wind protection would be valuable, this is not the rule in Colorado, especially in the eastern part of the State. When the wind blows here the temperature is generally higher. I think Inter-Mountain beekeepers would do well to locate their apiaries in a locality protected as well as possible and then add two or three inches of extra chaff packing to their cases rather than bother to build special wind-breaks. I think three inches of packing, together with the thickness of the packing-case boards and the hive-body, will give comfortable protection, even during a wind storm, provided the entrance is contracted to the minimum. Bees need very little air in the winter time, and the colony may be preserved by having a very small entrance.

There are two difficulties with the packing case that are probably the most serious ones to be met. With the use of so much straw or chaff, or even planer shavings, the danger from fire is greatly increased. One will need to be extremely careful at all times when using a smoker around these packing cases. Another objection is the fact that mice will doubtless make more nests in the bee yards, if they have these packing cases in which to build them. The least expensive method of constructing these cases and at the same time of producing the most effective results, has been on my mind

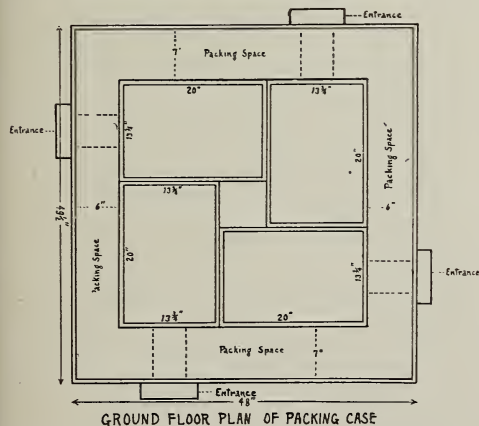
nie. In the Rocky Mountain region where we have slight rainfall thruout the year, I do not think it will be necessary to have a floor for the packing case. Simply put straw or chaff on the ground inside the walls of the packing case, using a hive-stand if thought desirable, but having this hive-stand packed with straw or chaff. The hives



may be placed right on the straw, but the disadvantage of this is that the straw may settle somewhat and disarrange your tunnel entrance thru which the bees pass from the hive to the outside. I have just finished making 60 packing cases for four colonies each, and am using flooring for the roof and common sheeting boards for the sides of the cases. I am making these cases high enough so that two hive-bodies may be used for a brood-nest before removing the packing. By the time the colonies have two hives filled with brood the weather will have become settled so that the protection from the packing will be less necessary. On account of our cool nights thruout the season, year-round packing will, I believe, eventually be adopted, and every beekeeper will do well to make his packing cases in such a way that the colonies can be manipulated easily without ever removing them from the case.

The accompanying drawings will explain the kind of a case that I have made so far, which will be found low in price and will certainly give the bees protection. If the colonies do as well in these cases as I have been led to believe, they will prove to be one of the best investments I have ever made. During the month of April we passed thru three cold snaps that seriously affected the breeding ability of the colonies, and I believe that I am safe in saying that protection of the colonies during the spring breeding season is of double the importance that it is during the winter, but there is no reason why the protection given the colonies should not serve both purposes.

One thing I have noticed is that beekeepers have protected their colonies on the top and three sides, and left the front exposed; or they have packed all four sides and top, and left the bottom exposed to the cold ground beneath. The bulk of the beekeepers who have given protection so far have done it in this half-hearted manner. Let us quit this way of doing and follow out the plan as suggested, so far as possible. Of course,



for some time. When the cheapest grade of lumber is \$26 per thousand, this is a matter of much importance. The writer has not been able to secure a satisfactory grade of lumber for making packing cases for less than \$40 per thousand. This will make the cost of lumber alone for a case come to between two and three dollars for four colo-

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we have to look to the expense, and my greatest objection to the windbreak for the bee yard is its cost. By adding three inches of packing space to the five inches, I believe I can quite largely make up for the lack of a windbreak, especially in this western county where it almost always warms up when the wind begins to blow.

One very great advantage of the packing case that I have not mentioned is the satisfaction the beekeeper derives from the knowledge that his bees are packed away snugly where there is practically no danger from losing any of his colonies.

Boulder, Col. Wesley Foster.

[If the beekeepers of Colorado will follow the suggestions given by Mr. Foster in this article, they will not only save winter stores but have much stronger colonies in the spring. A fair trial will convince any candid mind. The only criticism we might have to offer is that more importance should be attached to windbreaks or shelter. There should be no shelf or ledge under the entrance to catch snow or ice to clog it.

The scheme of having one entrance on each of the four sides is better in our opinion than having two entrances on each of two sides. The former will avoid drifting. See next issue.—Editor.]



THE ETERNAL PRICE QUESTION

How the Small Honey Producer Helps to Keep the Price Down. What the Price Should be

I ask myself the question and repeat it to my brother beekeepers: Supposing the wholesale price of honey to be 15 cents, why peddle it out at 12½ to 16 cents? Five one-gallon cans will cost more than one 60-pound can, and 10 six-pound cans, more than five one-gallon cans. A wooden keg will cost less than tin cans, and a barrel less than several 200-pound kegs.

It is all right to "look after our old customers," but yearly advertising is new advertising. I mean by that, unless you run an advertisement all the time, you have to look for new customers yearly. Not ten per cent of your "old customers" will remember you. Obviously it will not pay us to run an advertisement when we have no honey to sell, and it will not pay one man in a hundred to try to keep up a mail order business. Therefore, if we cannot get as good prices at retail, locally, as we can from the buyers, we certainly are foolish to lose one to three cents a pound by continuing our retail trade.

Prices depend on location—local retail prices, I mean. I am in a town of 100, and cannot expect to sell as much honey, locally, as the man living in a town of 500, nor can a person living in a town of 500 sell as

much honey locally as can a man living in a town of 1,000 or more. This admits of no argument. Then, too, it makes a difference where, in a town, the producer lives. If he has a store, as I have, he is well located to dispose of his honey advantageously; but in any community, if he be remote from the center of the town, or on a farm, his chances of selling are reduced.

It is said that "one farmer in eight now keeps bees," and "keeps" is right. Box hives, a salt barrel, a dovetail hive without foundation. But the point is here: They have actually started. They have bees. They produce honey, and as soon as they have a few pounds more than they need for their own table they sell it—at less than wholesale prices. The result spells lower local prices for the regular producer, the man with 50 to 400 hives or more.

I am anxious that we get the best price for honey that we possibly can; but location has much to do with prices. A very little advertising will sell honey in the city store, while a thousand dollars put into advertising would not sell \$1,000 worth of honey in this county. From experience in advertising I am positive of this: We small producers can get better than wholesale prices, the cost of containers added, in local sales. We can get about wholesale prices, containers and postage added, for mail orders. We can get about as much for 60-pound cans, f. o. b. home station, as we can get from jobbers, but here comes another problem: What are wholesale prices?

In a recent semi-monthly Market News Bulletin, U. S. Department of Agriculture, I found a range of 11½ to 22 cents a pound for "light amber" honey, an average of about 16c. So I ask again: What shall we honey producers base our prices on? Shall it be on 12 cents of the St. Louis quotation? If so, the Philadelphia price of 22 cents is too high.

It must be apparent to even the casual observer that there is a problem here which will take united effort to solve. I have no solution, altho I wish I had. Personally, however, I shall not sell honey at a price which is wholesale at my nearest large trade center, Chicago. Can I get more than that price and add the price of cans and, in mail order trade, the postage? These items make about three cents a pound to be added to the price of a gallon of honey, making it cost my customer \$2.16. My past experience tells me that I can get that, and more. At first I got \$2.25 in first, second, and third parcel post zones. Then I cut out the third, and finally got \$2.40. If I now had honey, I should try for 20 cents a pound, the cost of containers and postage added, and at that I'd be asking but about two cents a pound above the average wholesale price today, while in cities and large villages the

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customers must pay 25 cents to 30 cents a pound. With honey, postage, and can added, my proposed price is but 20 10/12 cents a pound. Can I get it? Does anyone doubt it?

A. F. Bonney.

Buck Grove, Ia., July 25.

THE BEST KIND OF HYBRIDS

They May be More Prolific and Produce More Honey Than Pure Italians

It is enough to furnish many hearty laughs to go to a beekeepers' picnic and hear what the prominent speakers have to say, and later observe what said beekeepers do and how the speakers' advice works out in real life. For example, Prof. Ray of Cornell said:

"Don't keep hybrids. There is **nothing good about them**. They have foul brood, they are cross, and objectionable in breeding new stock."

Now, we will say that Professor Ray is a pretty good fellow, but he will have to amend his stock statements regarding Italian hybrid bees before I can admit that he sticks closely to the facts. Hybrids are not always all that might be desired, but in many cases the first cross of Italian and black bees (Italian queens with hybrid drones) results in wonderful production of bees and marvelous production of honey. At the same time, under the same conditions of weather and flowers, pure Italian bees of uniform three-band markings, gentle temper, and possible immunity to foul brood, may fail to gain a profitable surplus of honey, when hybrids produce good yields.

I have kept black bees, pure three-band Italians, goldens, and different varieties of hybrids for the last eight years, and, after making careful observations and tests in breeding these races, I maintain that there are great possibilities in operating with selected hybrids and quickly eliminating any queens as soon as they show their stock of hybrids are not up to a certain standard of prolificness, immunity to foul brood, and highest working ability in turning out large yields of honey. I have one hybrid colony which has produced up to date this summer 270 pounds of extracted honey, and this is far ahead of any pure Italian colony's record here. This hybrid colony has no foul brood, the bees show about 25 per cent jet-black workers, while the queen is a beautiful yellow, and her progeny are gentle when a small amount of smoke is used to handle them. So we may say, when it comes to hybrids, that circumstances often alter cases. My conclusion regarding this matter is that pure Italian virgin queens should be used, when trying to get hybrid stocks. Degenerate bee stock is usually the result of tolerating mongrel queens. The first cross

in breeds of poultry are known to be very prolific layers, and the same is true of bees.

Canastota, N. Y.

Clark W. Wilson.

WINTERING NOT DIFFICULT

Only Three Chief Principles—Why He Approves the Demuth Method

Sometimes I wonder if wintering is such a problem after all. I do not believe it is. There are just three things to bear in mind.

The first is vitality. We should plan on having a strong colony of young bees to pack for winter. But not all young bees have the requisite vitality. When buying queens one should make sure that the breeder is up to date in his methods, and not just trying to raise something with six legs and four wings, and that resembles a queen bee. Buying from such a man is like throwing money away. Pay the price and get the best.

The next factor in good wintering is stores. A colony will not consume a great amount during the cold weather; but it is in late March and April, when brood-rearing begins that they use the most. In this locality a colony should never go into winter with less than 25 pounds of stores. Thirty is better, as it makes it safer till fruit bloom.

The third condition is protection. Some prefer the cellar. I do not. I think that, if the Lord had intended bees to live in a cellar, he would have made one for them; but instead he gave them a hollow tree, and that brings a mental picture of the Demuth wintering plan, which, I believe, comes as near to being a perfect case as we shall ever get. Having the comb broad side to the entrance keeps out the wind; and putting a ten-frame colony on seven frames adds to the warmth. Also, by having the frames on end the bees can go higher up than when the frames are horizontal. And one need not worry about the placing of the brood in spring, as it will not vary much from the way it is placed in the frames when horizontal, since the queen starts to lay at the back of the hive; and with the upstanding frames she begins at the top end, so when they are unpacked the top end can be placed at the back of the hive, and it is just the same as tho they had been horizontal. But there are other good ways to pack for winter; and one is the double-walled or chaff hive. But we must bear in mind, however we pack for winter, it is very important to have several inches of good packing on top.

I think that, if beekeepers would bear in mind the importance of these three requirements—vitality, stores, and protection—their troubles and losses would greatly decrease.

J. C. Mosgrove.

Medina, O.

"OUR best beekeepers admit that a queen seems to prefer a large frame; and she will lay more eggs in one large card of comb than she will in the same number of square inches contained in two combs, one above the other, but divided from each other by a top bar, a bee-space, and a bottom bar, as is the case when the queen occupies two supers. We have yet to run across a beekeeper who denies this proposition." Page 522, September Gleanings. Well, I'm not going to be the first one to deny it; but, with the editor's permission, I arise to question its correctness. I have had a good deal of opportunity to see what a queen would do when asked to furnish eggs in two stories. Naturally I expected she would be a little slow in going up or down from one story to another, and that in some cases I should find no eggs or unsealed brood in one of the stories, and in most cases no very young brood. On the contrary, I found about the same condition as if the brood had all been in one story; so that, while I am not prepared to deny that a queen has any preference, I believe that preference is so small as to be quite negligible.

* * *

"The eight-frame Langstroth size of hive is going out so rapidly that we can almost put it among the discards," page 523, and the objection named is that "in tiering up it becomes necessary for the apiarist to stand on a box or stepladder to get to the top of the supers when the season is good and the queen prolific," the matter being illustrated on the cover page. I have never seen anything like that picture in real life, and I suspect that such cases are so rare that they hardly need be considered. A more serious objection is that in a hive so small there is always danger that in the fall the amount of stores in the brood-chamber may be too scant to reach thru winter and spring. [Referring to illustration on cover page of September issue, the thing is not "so rare" as you suppose. If it were now possible for you to travel over the country as we have done lately, you would see numerous cases like this of eight-frame hives. In saying this we do not mean there will be a whole apiary of such skyscrapers. The illustrations showing various forms of wind-breaks in this issue will give an idea of some of the yards we visited during the last two months, in Michigan alone. The pictures of R. F. Holtermann's apiaries show 12-frame hives. If you will count the stories you will get some idea of what he is doing. The picture of the David Running apiary also speaks for itself. The picture on our September cover was photographed in this yard by the Editor. The beekeeper who

STRAY STRAWS

Dr. C. C. Miller

travels little can have but slight comprehension of what the other fellow is doing, and the photographs do not always tell the story for the simple reason

that the traveling editors are not always on the spot when the best showings are given. The time was when the eight-frame hive was the leader; but the call for it is becoming so light of late that it is likely to become an odd-size hive.—Editor.]

* * *

Outdoor or indoor wintering is quite fairly discussed on page 523, only when the reader is told that in a cold climate the small beekeeper with only a few bees may winter in a cellar with a furnace, he may understand that the man with many colonies can not equally use a cellar with a furnace. I hardly think the editor meant that. Wherever the man with a few colonies does well with such a cellar, I should expect the man with many colonies to do a little better, because likely to have more experience.

But suppose the man with few or many colonies, in a cold climate, has no furnace in his cellar. In that case it will pay him to have a stove in his cellar, either in the room with the bees or in an adjoining room, not altogether—perhaps not chiefly—for the sake of making the bees warmer, but for the sake of having good air in the cellar. With the cellar warm enough it is easy to ventilate; indeed, in very severe weather there may be enough ventilation merely thru the cracks and crevices of the cellar walls, if the temperature in the cellar is high enough. In a cellar too cold for best results, running up the temperature occasionally to 60 degrees or more may be a good thing; but, of course, it is better to have an even temperature of about 57 degrees. [When we spoke of 57 degrees we had in mind the internal temperature of the cluster, at which point the bees are the quietest. You evidently have in mind the temperature of the cellar itself. The average beginner, if he thought 57 degrees was about right, we are afraid would be led into trouble. Again, we believe it is rather dangerous to give it out to the general public that it is wise to shoot up the temperature "occasionally." As a general thing, the ordinary house cellar will have too much variation.—Editor.]

* * *

We are told to have in the hive abundant stores in the fall, not only to last them thru the winter, but thru the spring, as it is better to have the honey ready there in advance than to disturb the bees giving it to them in the spring. There is another reason, likely more important, for having a goodly store of honey in the brood-chamber thru the winter. It serves as a sort of balance wheel, equalizing the heat. In ordinary

weather the honey is warmed up to something like the temperature of the brood-nest. Then when the thermometer takes a sudden plunge away below zero, the bees with a big lot of honey do not get the full effect of it, because the heat that has been stored up in the honey is slowly given out; and it seems that such a colony should stand the shock better than the one with empty combs. Then, too, the presence of unlimited stores in early spring seems to have a sort of moral effect. As Doolittle expressed it, the bees say, "There's millions at our house," and they go at the rearing of brood without reserve.

* * *

It seems to be an understood thing that a few colonies of bees will winter in a cellar better than a large number. If the cellar is a little too cold, the larger number of colonies will generate more heat, and why shouldn't they winter better than a smaller number? Or, to put the question in more general form, why will a small number of colonies winter better in a cellar than a large number? I'm not sure I ever saw that question answered. Just now, I can think of no other reason than that the air is purer with the smaller number. If that be the true reason, then it would seem that the larger number should do just as well as the smaller, if by any means the air be kept just as pure with the larger number. I am strongly of the opinion that such is the correct idea. It is somewhat doubtful whether beekeepers in general are awake to the importance of good air for bees. I suspect that wrong temperature in cellars is not so much responsible for bad wintering as wrong air. [We agree with you most emphatically on the importance of having plenty of fresh air when the temperature goes above 50. The probabilities are that too much emphasis has been placed upon the advantage of air when the temperature is down to 43 and 45. When the mercury goes up to 60 then it is that the bees require a great deal of air. Better keep the temperature down to 45, if possible; but, if not, give plenty of fresh air.—Editor.]

* * *

M. C. Richter talks some good sense at page 544, especially when he says: "Colonies at this time which have yielded 50 per cent or less of the average yield per colony in an apiary by all means should be requeened as soon as possible." Never was this so important as now, because honey was never so high in price as now. Even supposing honey is sold at only 15 cents a pound, and supposing the average yield of the apiary is only 60 pounds, let us see how it will figure out. The colony that yields only 50 per cent is 30 pounds shy of the average, and that 30 pounds at 15 cents a pound will bring \$4.50. If \$1.00 is paid for a queen that will bring up the colony to the average, that will leave the beekeeper \$3.50 to the good—a matter worth considering. Let us, however, consider something

more nearly the actual, altho conservative. Let us suppose the average is 100 pounds, and the price 20 cents. In that case a shortage of 50 per cent will amount to \$10.00. Wouldn't it be good business to advance one of those ten dollars for a new queen? But that's not all of it. If that poor queen is left undisturbed, her influence will continue into succeeding years, and not the least of the mischief she will do will be to furnish scrub drones for forthcoming virgins.

I think Mr. Richter would agree with me in going still farther, and advising that every colony which falls below the average, whether it be 50 per cent or only 5 per cent below, should be marked for requeening just as soon as convenient, and then requeened with a queen that will not only bring the colony up to the average, but above the average. And then having on hand bees of the best stock, he will rear his own queens, keeping constantly in mind the slogan, "Breed from the best."

* * *

Speaking of getting rid of laying workers, this is said on page 554: "Another method that is sometimes employed is simply to take the hive several rods away from the apiary and shake the bees onto the ground and then return the hive to its original location. The workers will return to the hive, but the laying workers can not find their way back and will be lost." It is not always wise to combat cherished traditions; but, if the editor will obligingly take the witness stand, I should like to ask a few questions. As all workers are believed to mark carefully the location of the hive upon taking their first flight, and as the queen does so with equal care, do you believe that a laying worker never marks the location of its hive? If it does so, why should it not find its way back to that hive? Considering that a large number of workers are engaged in the disreputable business of laying eggs, and that consequently each laying worker can lay only a comparatively small number of eggs, do you believe that a laying worker, like a queen, is limited to laying eggs as its sole business? Do you know that a laying worker is not in the habit of going afield for nectar, just the same as other workers? Do you know that dumping at a distance from the hive the bees of a laying-worker colony will have any other effect than to lose the bees too young to have yet flown, if any such young bees be present? [We, together with the rest of the beekeeping fraternity, are obliged to confess considerable ignorance concerning laying workers. We do not know whether laying workers ever mark their locations or not, nor could we swear that laying workers never gather nectar, altho we seriously doubt it. But we do know that we have often eliminated laying workers by simply dumping the bees at a distance from the hive and then introducing a queen-cell or queen; whereas, if introduced directly, we have frequently met with failure.—Editor.]

WE are having the best yield of goldenrod honey I have ever known. Colonies that were very short of honey the middle of August have gathered enough for winter. It will help solve the winter-feeding problem and save many tons of sugar.

* * *

J. L. Byer says on page 548, September Gleanings, "if you have no buckwheat in your locality or other fall sources of honey," etc. Other writers seem to consider buckwheat as well as goldenrod, asters, and Spanish needle as fall flowers, yet the buckwheat blooms in August and has gone by before the middle of September. Goldenrod comes a little later, but that too has mostly gone before the sun has crossed the line. The aster began blooming the last of August with us this year, and may last for a month or until October. We also have some second blooming of sweet clover, that may last until the ground freezes; but our main sources of late honey are buckwheat and goldenrod that come before the autumnal equinox. I have been wondering if we would not be nearer right, if we were to call these later sources of honey late summer bloom rather than fall flowers, as we have been accustomed to do. Maybe, after all this is only a question of "locality."

* * *

I cannot help envying young beekeepers when I see and read the many things, helpful information especially, found in our modern bee journals. Take the matter of cellar-wintering discussion which the September number of Gleanings contains. I have been figuring up how much more it has taken in honey or sugar syrup to winter my bees out of doors than it would if I had begun with a good cellar and stuck to it thru all these years I have been keeping bees. Well, I find it has taken some 200,000 pounds or more of honey or its equivalent of sugar to winter my bees than it would, had I wintered in a good cellar. Enough to make a poor man well off! We think of the cost of a good cellar or repository in a sidehill, yet to winter 500 colonies out of doors this coming winter will take at least 5,000 pounds more than in a good cellar, which at the present price of extracted honey would amount to the snug sum of \$1,000—enough to build a pretty good winter home for the bees, and then it would be just about that much saved from year to year.

* * *

Dr. Miller says, page 538, "It is a good plan to put wet cappings down cellar to drain." Well, that is one way; and another is to soak them out in water and drain it off and feed to bees. However, I believe I

SIFTINGS

J. E. Crane

have a much better way than either. After most of the honey has drained out, I melt the cappings and run them thru a wax separator. The wax runs out in-

to one vessel as clean and pure as you could ask for, and the honey into another, while the dirty wax can be taken into still another—a great improvement over carrying cappings into a cellar. All the honey and wax are saved, with the least possible amount of work.

* * *

Dr. Miller and C. A. Aeppler appear to disagree as to the source of vitamins, page 537. Dr. Miller thinks they are found in the honey, while Mr. Aeppler is equally sure they are found only in pollen. Now, whether Mr. Aeppler is right or otherwise, it seems very doubtful that we shall ever be able to persuade people to eat pollen for the sake of the vitamins it may contain. If Mr. Aeppler is right, Dr. Miller is also partly right, for nearly all honey contains more or less pollen.

* * *

The Editor of Gleanings tells us on page 522 that the movement in favor of a large brood-chamber is quite general, and that eight-frame hives are going out of fashion. I wonder if this is not, in part at least, the result of beekeepers turning their attention more largely to producing extracted honey.

* * *

"The cage that will do it," page 351! I am glad, for a safe and sure way to get bees from the South in spring is going to be a matter of great importance in the future, I believe, as there is likely to be a shortage of bees here in the North in the spring for many years to come.

* * *

Those hives with supers on cover page of September number of Gleanings look pretty good. Lots of work to brace up a lot of hives in that way, did you say? Maybe, but it will pay if the bees will fill them.

* * *

There has been an unusual call for honey this season, many persons coming from a distance in automobiles and taking a supply back with them.

J. E. Crane in April Gleanings seems to think Weaver wants to sow sweet clover on other people's land. Well, that may be; but almost anybody would consent to a person's sowing the railway right of way. As to the railway companies, they have no option in the matter, as all plants on the right of way belong to the de facto owners of the land itself who pay the taxes on it. The same rule applies to county highways. In short, first find limy land, and then ask the owner for permission to sow.

Battlecreek, Mich. Chas. A. Johnson.

CONDITIONS brought about by the war have so greatly increased the problem of feeding one's family wisely that we housekeepers need every bit of help we can find. What makes our problem doubly hard is the fact that it is our duty not only to feed our families a balanced ration but to try to feed them no more than is needed to keep health and strength at the maximum. We are all rejoicing that the food crisis of last spring, when it looked as if Germany might actually succeed in starving England and France into submission, is over. But altho our bountiful wheat harvest and the wonderful increase in ship-building have made food conditions so much easier for our allies for the present, we must remember that the constantly increasing drain on our man-power is going to cut down on food production more and more as long as the war lasts. Those who are in a position to know tell us that we cannot expect future harvests, while the war lasts, to equal that of this year for lack of farm labor.

The Food Administration tells us that we must build up a reserve for the "lean years" that will surely come, if the war goes on. That is the reason we must still buy 20 per cent substitutes with our wheat flour and why we must persist in not allowing an ounce of any kind of food to be wasted.

OUR FOOD PAGE

Stancy Puerden



The table given below of the five food groups seems to me the best and most sensible that I have ever come across. If a copy of it were pinned up in every kit-

chen in the country, it would help us feed our families well and wisely in spite of high prices.

Notice that the first two groups are made up of foods which are mainly for the purpose of body-building, while the fourth and fifth groups are fuel- or energy-yielding foods. Between the first two groups

and the last two comes group three, the cereal foods and their products. This is truly a "middle" group in that it shares the properties of the groups which precede and those which follow. In other words, the cereals are valuable sources of body-building foods and are sources of energy as well. Do you wonder that bread has been known as the staff of life?

Now most of us know that a balanced ration should contain foods from all the above five groups. And yet, now that prices of foods have mounted to such extreme heights, we are apt to feel that we must spend our food allowance for the cheapest sources of body-building and energy foods, the cereals and their products, and the legume seeds, peas and beans. For this reason many housekeepers do not provide enough of foods from group one, especially city housekeepers. Another food which is too apt to be neglected in these times of

The Five Food Groups.

Group I	Group II	Group III	Group IV	Group V
<i>Fruits and vegetables.</i> Important sources of mineral substances.	<i>Milk, meat, meat substitutes, meat savers.</i> Sources of protein.	<i>Cereals and their products.</i> Starchy foods. Valuable sources of energy and protein.	<i>Sugar, sugar substitutes and savers.</i> Supply energy in readily available form.	<i>Fats and fatty foods.</i> Supply much energy.
<i>Vegetables</i> Spinach Lettuce Cabbage Celery, etc. Salsify Potatoes Carrots Onions, etc. String beans Green peas Green corn Okra, etc.	Milk Cheese Eggs <i>Meat</i> Beef Mutton Pork Veal, etc. <i>Meat substitutes</i> Fish Oysters Clams and other sea food Some legumes <i>Other protein-rich foods</i> Beans Peas and most other legumes Nuts	<i>Grains</i> Wheat Rye Corn Rice Oats Barley Grain sorghums Buckwheat, etc. <i>Grain products</i> Flours Meals Cereal breakfast foods Macaroni, etc.	<i>Sugars</i> Cane sugar Beet sugar Maple sugar Milk sugar <i>Sugar Substitutes</i> Molasses Honey Glucose Corn syrup, etc. <i>Sugar-rich foods.</i> Sweet fruits, fresh and dried Jams Preserves Candy, etc.	<i>Fats</i> Butter Cream Lard Drippings Seed oils Nut oils, etc. <i>Fat-rich foods</i> Fat pork Bacon Suet Oily nuts, etc.

high prices is milk. Many people regard milk merely as a beverage and feel that they cannot pay a high price for it when the money should be spent for solid food. As a matter of fact, milk is a much more important food than meat, and, considering its food value, is cheaper. It will do us no harm to cut down on the amount of meat or even go without it altogether, but we should never reduce the amount of milk, especially for growing children. Milk comes near to being a perfectly balanced ration, containing the proper proportion of protein, fats, carbohydrates, and nearly all the necessary minerals. In addition it contains both classes of vitamins, or, as it is the latest fashion to call them, the two "unknown essentials."

In many parts of the country farmers have been reducing the size of their dairy herds because people have been unwisely cutting down on the amount of milk used. The great nations of the world have been the nations who have used plenty of milk. Buy whole milk rather than cream and use the skimmed milk for cooking purposes. One quart of milk every day for every child in the family is none too much. This amount includes that used for cooking.

The food administration has recently issued a list of what it calls "protective foods."

Brussels Sprouts	Lettuce
Cabbage	Milk
Cauliflower	Onions
Celery	Spinach
Collards	Swiss Chard

We are told if we shall include some of these in our diet every day, we shall be sure of getting enough mineral matter. I suspect this is a case of speaking one word for mineral matter and two for the growth-promoting vitamin "fat soluble A," for all these foods are rich in the latter substance.

A Timely Subject.

"Sweetening," or rather how to get enough of it, is occupying the attention of food writers to the exclusion of nearly everything else just at present. Everyone is looking for a sugar substitute. Aren't you glad you married a beekeeper, Mrs. Subscriber?

Between you and me, it makes me quite cross to have honey called a "sugar substitute," especially when it is placed in such company as it is in the above table of food groups. Sugar is a man-made substitute for the only concentrated sweet devised by the Creator, honey. When I hear people call honey a "sugar substitute," I tell them honey was used thousands of years before a sugar refinery was even thought of.

Dr. Miller tells us on page 537, September Gleanings, that a Mr. Aeppler in the Beekeepers' Item expresses a doubt of there being vitamins in honey. I never before

heard of Mr. Aeppler, but judge he must be from Missouri. However, I do not believe his views and mine are so far apart. When he talks of vitamins in pollen he evidently means the growth-promoting vitamin, soluble in fat. I never made the claim that this class of vitamins is in honey, and I agree with Mr. Aeppler in believing that it probably is in pollen. I made the statement that it is the vitamins, soluble in water, which are in honey, and I am by no means ready to recant. When I began to read up on vitamins I was struck with the fact that the class soluble in water seems to be present in practically all natural foods, and, as honey is not subjected to any milling or refining process to rob it of any of its constituents, it seemed reasonable to assume that it contained vitamins. I therefore consulted chemists and food specialists high up in their profession, and when I found that they were practically unanimous in agreeing that honey is a vitamin container I took the Gleanings readers into my confidence.

Research work is constantly going on in regard to these interesting "unknown essentials," and it is difficult to "prove" anything about them

as yet, altho it is pretty well established that their absence in the diet makes all sorts of trouble. I believe I am correct in saying that no chemist has succeeded in isolating them up to date, altho many are endeavoring to do that very thing.

Just at this point my grown-up nephew, also much interested in honey, happened to be crossing our lawn, and hearing the click of my typewriter, came to the window and asked me if I would like to sample some ice cream. He had ordered it for a dinner given by the A. I. Root Co. for its foremen, and he said there was some to spare. It was from the largest ice-cream makers in Cleveland, and was made by substituting an equal weight of honey for sugar in one of their regular recipes. (There I used the word myself, didn't I? In talking about using honey in recipes it is difficult to avoid it.) You never tasted ice cream of a finer texture or a more delicious flavor. The honey flavor was not prominent, as vanilla was also used, but it certainly added a delicious taste which is hard to define. I am going to try some honey chocolate ice cream, as the Puerdens are very fond of the combination of honey and chocolate.

While we were staying at a cottage on the Lake Shore a few days, we ran out of sugar and could not obtain any there as our sugar card was back in Medina. For that reason I experimented with honey as a sweetener for sliced peaches and found it delicious, and the rest of the family agreed with me. Don't put on too much when you try it, as the peach flavor should not be smothered in sweet of any kind.

"Mary had a little bee,
'Twas worth a lot of money;
For when the sugar bowl was cleaned
She substituted honey."

WE have spoken, all of us, of the fraternal spirit among beekeepers, the friendliness and all-of-a-family sort of feeling that draws them

one to another. And among the letters that have dropped in on me from fellow beekeepers, some of them, by coming from lands across the seas, do bring that particular quality very close home. In a friendly note from New Zealand, I find these words, "I want you to know that we beekeepers in this Dominion, that is generally known as 'God's own country', have a very warm place in our hearts for all of our craft, wherever they may be, and particularly those of our blood and language across the water." And in a charming letter from one of the editors of the "Yoho no Tomo," the monthly Japanese bee magazine, there is plainly evident that same spirit of fraternity. And, by the way, the name "Yoho no Tomo" means "The Friend of Beekeepers." Isn't that a captivating name?

Unfortunately, tho, the magazines that were mailed by these two friendly-spirited gentlemen, one from New Zealand and one from Japan, failed to reach me. War conditions doubtless had much to do with it. But I was disappointed, of course, for they both would have been so interesting—the one thru what I could read, and the other thru what I could not. And as I have never seen one of my own verses in a foreign language, I was very curious to see one in Japanese, as I was told I should in the "Yoho no Tomo." In that letter itself was a Japanese poem, inscribed in the Japanese characters, that look so mysterious to us who do not know them. But it was courteously translated, and there again was the same brotherhood of beemen in the little Japanese poem, for it told of the writer's attachment to the "far, far America" he has never seen, because America, too, keeps bees.

And then, just lately, came a letter from the "Australian Imperial Forces, on active service, abroad," with these words as part of it. "We are near the 'line,' and tonight the sunset was glorious. One of the boys mentioned bees, staying out to see it. * * * I 'keep a bee' in Queensland, Australia, and am an enthusiast who has great hopes of the industry, and great love for all connected with the bee, and who feels the warm grip of 'hands across the sea' that seems to come to those who are fortunate enough to have the song of the worker ringing in their hearts and lives. Am on my way to help in France. Hope I will soon have the good fortune to return to my beloved Australia."

Can't you see them over there "near the line," watching the sunset and talking

Beekkeeping as a Side Line

Grace Allen

about bees and home? Then later in the letter he speaks of his plan to visit the United States with One Other (this isn't telling, is it, when I don't

give his name?) after he gets home and they are married. And don't we all most fervently wish him great good fortune over there in France, and a speedy safe return, and the full realization of all of his dreams? Indeed we do.

Then out of the friendly thoughts of one of our own American beekeepers there recently dropped into my life a most ingenious box for hunting bees. It is all cut and fitted and fashioned most perfectly and with great dexterity and skill. And a delight of a hive tool from another—and it all means friendliness, simple great-hearted friendliness, one of the biggest and best qualities God has put into human souls.

This spirit does not stop with letters and graceful gifts, however; it goes on out into practical helpfulness. Most generously, in all places, year after year, do veteran beekeepers give of their experience and learning to those just starting in the work. Once, to be sure, a beekeeper said to me in a letter that it was an old saying and true that "those who tell do not know and those who know do not tell." But I don't believe it about beekeepers. Doubtless those who tell do not know everything, and possibly there are a few who know valuable things they will not tell, but I doubt that the most of those who know a great deal hide the light of their knowledge under a bushel of self interest. Think of the big men who stand head and shoulders above the rest. How freely they have given of the fruits of their experience and observations, from Dr. Miller down. "A good beekeeper and sort o' soft at the heart, too. So a lot of beginners go to him to get started goin' right" was how M. A. O. recently spoke of one. Of all this big-hearted feeling and generous spirit manifest by the beekeepers of the land, and of the world, I for one feel particularly proud.

* * *

The Tennessee Beekeepers' Association held their annual Field Meet on the campus of Peabody College, Nashville, on Thursday, Aug. 22. It had been hoped that Dr. Phillips, who was prevented by weather conditions from being with us last winter, could be at this meet; but this time he was detained by important matters, so we shall wait again for some more favorable time. It was not a big meeting, about 25 in all, but it was very pleasant, sitting there under great shady trees, talking about bees. Nearly everybody told freely what he did, and when, and why, and what he thought the best way to do it. Rev. R. S. Scatterfield,

former secretary of the Oklahoma Beekeepers' Association and now residing in Nashville, gave a most entertaining account of his own experiences and told interestingly of beekeeping in Oklahoma. As usual, Mr. Buchanan became the center of a volley of questions, and as usual answered them all fully and freely and helpfully. There was a general lament over the harrowing combination of a very short crop and unheard-of high prices. Samples of honey were passed around and compared. If there had been a prize, it would unanimously have been given to Mr. Ellis' sourwood honey. All the talks were informal and brought out animated discussion and comment. Spring management and wintering were the favorite topics for argument. For the most part, even last winter's losses were not heavy enough to usher in a general trial of complete winter packing, for this fall. One man is at work making chaff hives for all his bees. Others reported good success from top packing only, some over burlap, some over sealed covers, and plan to continue with this. Others use nothing at all, not even entrance-contractors, and plan to continue with this. But great stress was put, almost unanimously, on the necessity of young queens. Requeening every year was advocated by some. "But if you've got a hundred colonies or more, that's some job," protested one beekeeper. Half one year and half the next, then; or just requeen those that seem to need it, were among the suggestions in reply. (Personally I seriously question the wisdom of the latter course. A queen may show no signs of failing this summer, and yet have lost enough of her vigor so that a younger one would be much better for next year.) Some brought picnic lunch and others lunched in the college cafeteria. And when we parted at the end of the day, no one had learned any wonderful get-rich-quick method of honey production, but each one carried away the memory of a friendly group under great old trees, the fresh touch of other minds and a definite stimulus towards better beekeeping. Which is what field meets are for.

Speaking of requeening, hunting queens is a job sometimes. Those few colonies we bought this spring ran to blacks and hybrids, and I shall never forget the time I had finding their dusky royalties. Over the frames I hunted as I set them out, and over the frames I hunted as I set them back. Then I did it again. Then I sifted them, smoking them down thru an excluder. And mostly I found her, but once I lost her and once she flew away. I certainly should hate to requeen a whole yard every year, if they were of that complexion and of that disposition, the bees running wildly over the combs and bunching and dropping off, the queens themselves running and hiding, and everybody acting wild and flighty and nervous. Perhaps, tho, the resulting spirit of exasperation makes the execution itself less

difficult. Most Italians, on the other hand, are so quiet when their hives are opened that the queen is seldom difficult to locate, almost never gets excited and often calmly goes about her laying while the comb she is on is taken out and examined. Then requeening is comparatively easy. Yet it is hard then in another way. Is it squeamish and womanish to admit how hard it sometimes is?

In June we found our bees working most industriously in their new country home on a rather tall weed with which we had no previous acquaintance. Every effort of our own to locate this weed landed us squarely in the Mint Family. Yet we didn't dare stay there, because according to Gray the seed-like nutlets of the Mint Family are never prickly. And prickly these surely were. About three feet high the plant was, with a square hollow stem, simple leaves opposite each other on the stem, and light purple flowers, that I should call 2-lipped, at the axils of the leaves, and running at the top into terminal spikes. Sounds like the mints, doesn't it? But there were those prickly little seed suit-cases. Does anybody know what it is? Next summer, if the bees crowd on it so thick again, we'll get its name and family connection, if we have to send it to some authority for identification. Not that there was much of it, but the little clump by the old shed had always several bees on each stalk, and that roused our curiosity and interest. And a beekeeper's curiosity and interest, once aroused, are hard to quiet with anything less than the fact.

Quite a good many beekeepers this year ran their bees, or part of them anyway, for increase. This accounts in part for the poor crop, but even those that were run solely for honey produced very little surplus. Scanty nectar in the white clover, and the long drouth, quite spoiled the season. But isn't there another year coming?

I am in receipt of a bulletin entitled "How to Keep Bees," issued by the Entomological Department of the State Board of Agriculture of Rhode Island. The bulletin was written by Mr. Arthur C. Miller, and it is undoubtedly one of the most able and concise treatises on the subject I have ever seen.

A PICTURE.

A group of soldiers near the line—
A flaming sunset glory
Whose beauty gently silences
Careless laugh and story;
Then thru the silent beauty, bees
Go drifting with their plunder,
Trailing memories and hopes
Across the golden wonder.

"We've bees at home," a soldier says,
"I've watched them go and come
A million times, and in the spring
I've listened to them hum.
When I go back and marry Sue,
I'll have some apple trees,
A garden and a climbing rose
And seven hives of bees."



FROM NORTH, EAST, WEST AND SOUTH



In Northern California—Ordinarily August is one of our best, if not the best, month for honey production in our entire section. It is unfortunate, especially under existing war conditions, that so little honey has been produced during the last month. The weather was cool and not conducive to nectar secretion until the latter part of the month. September gives promise of a light fall flow. The last extracting of alfalfa is practically all off the hives, and the crop this year is one of the lightest in the history of the valley, despite the fact that beekeepers everywhere made every effort in point of numbers and condition of colonies to secure a large yield. During September we expect to produce several cars of light-amber and amber honey from fall bloom on the plains but nowhere the number of cars that we harvest from this source during a normal season. There is now a fair flow from the star thistle in the northern part of the valley, but the bees there are in such a deplorable condition on account of disease that the production from this source will not be large. The honeydew flow along the rivers is likewise very disappointing. Usually this honey makes its appearance in either June, July, or August, but this season the flow did not commence till the beginning of September, and we do not anticipate more than three or four cars of this dark honey. There is at present a very heavy demand for this grade among buyers. At any time from now on beekeeping weather may take a turn for the worse. A cold snap or early rains may set in and shut off the flow for the balance of the season. In view of this fact we can not emphasize too strongly that the practice of extracting honey close is a most unwise policy to follow. Furthermore it must be remembered that at the present time it is practically impossible to secure sugar for feeding bees. In the event of a poor spring next year no beekeeper has a legitimate reason to ask for sugar for feeding purposes, if he made it a practice to extract clean before the fall flow.

It was pointed out in August Gleanings that on June 26 steps were taken to formulate the California Honey Producers' Co-operative Exchange. This Exchange was incorporated on July 15, and the temporary officers named on June 26 have been permanently elected. On the day of incorporation the State Exchange drew up an agreement between themselves and the various local exchanges embodying the following principal objects and purposes:

To promote, foster, and encourage the production, distribution, and consumption of honey and other bee products, thru standardization, uniform grading, proper advertising, the extension of markets, and all other legitimate means.

To prepare honey and other bee products

for market, and to manufacture all articles in which honey or bee products may be used.

To lessen the cost of marketing and production by creating central agencies to represent the State and the local exchanges in the co-operative marketing of their products and the purchase of supplies, and by disseminating information concerning all pertinent matters, the maintenance of our advisory legal department, the handling and adjustment of damage and other claims, the collection of the proceeds of sales and otherwise.

To secure for all producers, and all local exchanges, fair and just representation in marketing and all other matters in which there may be a joint interest, under fair and equitable rules, to be determined by the parties in interest, with due regard to the volume and value of the product of each and of the number of producing colonies of bees owned or controlled by each producer; and, while uniting so to do, at the same time to preserve the independence of each.

To provide all facilities to its members, and the local honey producers' exchanges represented by them, at cost, prorated according to volume and value of business, under equitable and uniform rules.

At the present time eight of the ten locals are parties to this agreement. The membership of the State Exchange consists of two beekeepers duly chosen by each local exchange. These members constitute the State Exchange and it will be seen that each local exchange has equal representation and voice in the conduct of the parent organization. The four local exchanges in the northern part of the State are all members of the State Exchange. The names of these organizations and the respective members of each are as follows: Central Valley Honey Producers' Co-operative Exchange, M. C. Richter and W. W. Thompson; Superior California Honey Producers' Co-operative Exchange, Oliver Parks and B. B. Hogaboom; Inyo Honey Exchange, W. A. Trickey and A. Shelly; Southern Valley Honey Producers' Co-operative Exchange, C. W. Tompkins and Robert H. Ellithorpe.

Modesto, Calif. M. C. Richter.

* * *

In Southern California—Your southern California correspondent is now writing from a point at the headwaters of the Bishop Creek branch of the Owen's River, Inyo County. I am 21 miles from a post-office and it may be several days before I can get to mail this. I was at an elevation of 12,000 feet yesterday and found small black bees working on the scant flora to be found on the poor granite soil. If these bees can manage to live, then would the strain not be valuable for hardiness? No bees are kept within at least 15 miles, so these must have been the



FROM NORTH, EAST, WEST AND SOUTH



result of swarming several times and going farther into the mountains.

Today I spent a very pleasant hour with Muth Rasmussen of Independence. For 35 years he has lived on the same place, three miles from the county seat of Inyo County. At one time he had about 300 colonies of bees located on his home place. But two very severe winters, together with European foul brood this year, has reduced his numbers somewhat. Wild buckwheat is one of the principal honey plants of his neighborhood. This year the sheep were kept grazing so long that the honey from that source was almost a complete failure. Alfalfa and sweet clover follow and furnish some honey in most seasons. Mr. Rasmussen's apiary is especially attractive for a southern California apiary, being located in a dense shade of honey locust trees planted by himself.

The ravages of European foul brood over the valley in general have caused a very heavy loss of bees, and many small apiaries have been almost entirely lost. The honey crop of the Owen's valley—practically Inyo County—is all comb honey. Extracting has been tried here, but has not proven to be satisfactory. Owing to the dryness of the atmosphere, the honey is so thick that extracting is almost impossible. The crop in this valley is much below normal. Only in a few localities do they report a satisfactory yield. Almost all of the beekeepers here have joined the State Exchange. Heretofore they have been at the mercy of unscrupulous buyers. With the price of honey as high as it is this year, the producers have been offered as low as \$2.50 per case.

Bees are generally in good shape in southern California, and disease is well under control. Most of the honey has been sold at very good prices. Perhaps from five to ten carloads are still in the hands of producers. As high as 23 cents has been offered for the entire crop of some small producers. Comb honey brings about six and one-half dollars per case for No. 1. Bees are very much in demand at big prices. Occasionally an apiary is offered for sale by a man going to war, but, generally speaking, most beekeepers consider them as good an investment as they can make. Many of our beekeepers who moved their bees to the bean fields, have not met with the success they expected. A few very warm days seemed to cut the flow short, and many beekeepers will consider themselves lucky if their bees fill up well for winter. The lima bean, which does the best near the coast where there are heavy fogs, seems to be the only variety that yields honey in sufficient quantities to really pay for the extra move. The foggy days are not the best for the bees to work in, and consequently a yield of honey is not certain even from that source.

Corona, Calif.

L. L. Andrews.

In Minnesota—Word has just come from Washington thru our new special field agent that the man who has honey can not get sugar for feeding bees. If he has sold his honey, he will be compelled to accompany his application for sugar with a receipt from the Red Cross, showing that he has paid to the Red Cross the difference between the price of the sugar and that of the honey. This order comes rather late for Minnesota, since we have been assured that we could secure the sugar, and, as a consequence, many have extracted all their honey where otherwise they would have kept a sufficient amount in combs for feeding. We prefer feeding with combs of honey. In the fall we place on the brood-chamber a division containing a sufficient amount of honey of good quality to last the colony thru the winter. No excluder is used. The bees and queen will move into the upper division, and they will also remove all the uncapped honey from the lower division. Later the lower division is removed and put away for the winter. The honey that still remains in the combs will come handy in the spring, when this division is again placed on the bottom-board and under the brood-chamber shortly after the bees are removed from the cellar. We also put aside other combs of honey for spring feeding. [We are pleased to say that Dr. E. F. Phillips of Washington (who certainly knows) has telegraphed Gleanings that there is no truth whatever in the report that the man who has honey can not get sugar for feeding; or that the beekeeper who has sold his honey cannot get sugar to feed unless he pays the Red Cross the difference between the price of the honey he may have sold and the price of the sugar he asks for.—Editor.]

During the last three seasons several of our beekeepers have experienced considerable trouble from the loss of queens. This loss occurs generally in the early part of the season just when the queens should be laying their best. The mortality seems to be the greatest among young queens—those reared the fall before. Generally they simply disappear, but, in some instances, the queen has been found still alive on the bottom-board or in front of the hive, scarcely able to crawl.

Our State Fair was held during the first week in September. The honey exhibit was fairly good, considering the fact that we have had a poor year. Still it was far from being what it might have been had the beekeepers taken hold of it as they should. How to arouse greater interest in our annual honey exhibit is one of the problems facing the Minnesota beekeepers. During the six days of the fair the average daily attendance was 71,614. Manifestly this is one of our great opportunities to advertise honey,



FROM NORTH, EAST, WEST AND SOUTH



and we ought to improve the opportunity.
Minneapolis, Minn. Chas. D. Blaker.

* * *

In Iowa—At last, the beekeepers in Central Iowa are wearing a smile of anticipation. The bees have filled their brood-chambers for winter and for over a week have been storing surplus from the smartweed. The present weather prevailing for two weeks without a frost will see hundreds of supers filled with "nature's sweet"—the kind God intended man should eat, instead of vitriolized corn juice, strained thru bone dust to devitriolize it, and then sold on the market as glucose, or corn syrup, and the public told it is as "good as honey"—an insult to God and a travesty on man's judgment as to what is fit to eat.

The past two years of failure of the honey crop and the final disappearance of the honey on hand, together with the growing interest in bee culture in general, are going to add a healthy stimulus to the honey business. Every beekeeper is now being solicited continually for honey. The Iowa Beekeepers' Association is a rising power in this direction because of its increasing influence among the people—a result of the live interest exhibited by its members in all parts of Iowa. The sugar problem will be given a great relief, if the honey-producer can come into his own. Every Iowa beekeeper should talk honey, use honey, and sell honey every day in the year. Now is the very time and opportunity to popularize its everyday use. For over 40 years the writer has conducted a successful printing business by talking it every day and popularizing it. Since he began working with bees, the same rule applied has turned it around and now everybody asks about the bees, wants to buy honey, and doesn't even mention the printing business. At present, it just seems as tho everybody in Marshalltown is anxious about the honey crop and is real honey-hungry. The beekeepers of the town have made it so by talking about it, and will actually sell all their honey locally, because they have educated hundreds of people to eat honey, every day, who never before had given it a thought; and the present scarcity of it has practically caused their honey appetites to become ravenous.

The seventh annual convention of the Iowa Beekeepers' Association will meet in Des Moines on Nov. 6 and 7, in the parlors of the Chamber of Commerce. The earlier date this time is to accommodate the apiarists in general, and especially the horticulturalist members, who have their Midwest Horticultural show the same week. Every beekeeper and friend of the bees is invited to attend. A first-class program is being prepared, a copy of which will be mailed to every member of the Iowa Beekeepers' As-

sociation and anybody else interested enough to ask for one.

Marshalltown, Ia. Hamlin B. Miller.

* * *

In Ontario—Mention was made in notes sent for September issue of the large acreage of buckwheat in Ontario this year, and of the drouth prevailing at time of writing, which was likely to curtail both honey and grain if long continued. Shortly after writing, copious rains fell and buckwheat has given a fine yield of honey this year—perhaps one of the best on record in this section at least, considering the number of colonies that were in shape to take advantage of the flow. Needless to say, the crop at present prices is not to be despised, and, aside from the surplus obtained, colonies are put in first-class shape for winter, many heavy enough in brood-chamber so that no feeding will be necessary. I had started a number of two-frame nuclei in July, and nearly all built up to full strength and heavy enough for wintering, largely thru the good buckwheat flow that we were blessed with this year.

Speaking of feeding reminds me of the sugar shortage, as in localities where the honey flow failed as well as in places where foul brood is present, one has to resort to sugar whether he wants to or not. Present rulings are that beekeepers who urgently need sugar can lawfully get it, if it is to be got—which is the rub. Speaking with Secretary Hodgetts a few days ago, he told me that at present there was little sugar available, and it looked as if there would be a shortage for some time. It is to be hoped that in urgent cases, as already mentioned, sugar can be obtained; else a real hardship and loss will be the lot of many beekeepers, not to mention the loss of bees to the country in general at a time when honey is so urgently needed.

At date of writing, Sept. 7, the country has been having soaking rains. Freshly seeded clover, that for a while looked to be a "poor catch," is now beginning to show up nicely, and indications are that alsike will go into winter in fair condition, altho a number of farmers tell me that their seedings were killed by drouth and rank growth of grain which seemed to take all available moisture from the tender clover plants. But in driving along the roads I have noticed some fine fields of alsike showing up; so, possibly, the greater part of it will be all right.

Before the war, large quantities of alsike clover seed were exported to northern Germany, Denmark, Holland, and adjoining countries, and, as export to these countries practically ceased at once after hostilities began, many, including the writer, expected to see alsike drop in price and incidentally drop in acreage, to the loss of the beekeeper



FROM NORTH, EAST, WEST AND SOUTH



as well as the farmer. As I bought clover seed for a number of years for a large seed house, naturally I was interested in the clover crop from more than one angle. Contrary to expectations, alsike seems to be in as great demand as ever, and prices paid this year are high and the crop an abundant one in so far as yield per acre is concerned. Many fields around us have averaged 10 and 12 bushels per acre while a few have gone 14, and, in two cases at least that I know of, very nearly 15 bushels per acre were obtained. When one considers the small size of alsike seed, surely we must concede alsike to be one of the most prolific yielders of all the clovers, when conditions are right. Twelve and a half dollars a bushel, as seed came from machine, was a common price. So it needs no argument to prove that it is a great paying crop even in a time of inflated prices for grain and all other produce. Alsike is the premier honey plant of Ontario—no doubt about it—and naturally all beekeepers will be glad to know that for the present at least the acreage is not apt to grow less. Alsike and buckwheat when grown in a locality, make a combination hard to beat in so far as a honey-producing location is concerned, altho localities that have no buckwheat sometimes produce a little whiter honey than it is possible to get in a buckwheat locality by reason of the buckwheat coming up the following spring in the grain and blooming at time that clover is blossoming. Then again, if bees are wintered heavy on buckwheat, one has to be careful that none is put in supers, particularly if much hoisting of brood is practiced, as a very little buckwheat soon makes a showing in clover honey. But, for all its disadvantages, I still think that the advantages far more than make up for this, and, having bees in localities that have buckwheat and in other places where none is grown, I speak from experience on this question.

This phase of the beekeeping business was brought forcibly to my mind a few days ago when a friend from one of the eastern counties of Ontario called at my home to ask advice as to the merits of a location in the great clay belt of northern Ontario above New Liskeard. While big crops have been obtained in that north country and the quality is always fine, yet taking one year with another, I believe the clover-buckwheat combination is the safest, and so advised my friend. But all cannot keep bees in one part of the country, and I am free to admit, if I were a younger man not tied up with a family, that I would like the plunge into that new virile country, as I visited it some years ago and impressions received at that time as to the beekeeping possibilities have not yet left me by any means.

Goldenrod has always been a negligible yielder of nectar in our apiaries, but this

year appears to be a definite exception. Markham, Ont. J. L. Byer.

* * *

In Texas—Sweet clover as a honey plant for Texas has been given quite an extensive test in a few of the northern localities during the past season. The plant does very well wherever sown, and the growth is especially attractive on the poorer soils and so-called waste places. This year it was called upon to furnish honey for a good many colonies to build up on. The flow was heavy and of a very good duration. Many apiaries enjoyed a good surplus from sweet clover. The results of this venture should be of interest to beekeepers over the entire State. Sweet clover as a honey plant is worthy of more consideration by the beekeepers.

The Texas Agricultural Experiment Station has recently issued two publications of interest to beekeepers generally. Bulletin 231, entitled "The Beemoth or Waxworm," is a revised and enlarged discussion of the same topic formerly contained in Bulletin 158. The new bulletin discusses the experiments conducted with the beemoth very fully. Every beekeeper should become more familiar with the details of the life history of this expensive pest of the apiary and the possible control measures. This bulletin is free upon application to the director at College Station. In Control Circular "B," are contained the foul brood law and the new regulations issued by the State Entomologist in the Apiary Inspection service. Every beekeeper who buys or ships bees, honey, or appliances should be thoroly acquainted with the provisions of the law and regulations. The vast majority of the violations are due to ignorance on the part of the beekeeper. Certain changes are to be noted in the new regulations. A copy of this bulletin can be had upon application, as mentioned above.

Local rains have occurred over most of the State during the last month. Reports indicate that untold benefit will result from these rains. In the eastern sections, conditions are now more favorable than at any time in months. Fall flows of honey are now expected in several sections, and it is hoped that sufficient stores will be gathered to carry the bees thruout the winter. Good crops of honey have been gathered in localities in the northern part of the State. In one section, the cotton flow was very heavy on the black heavy land, but was almost nothing on the light sandy lands. This is usually the case, as was determined last spring when a survey of the honey plants was made.

Honey prices are still very steady with a slight advance in some sections. Those beekeepers who prepare their honey carefully for the trade are entitled to a big increase



FROM NORTH, EAST, WEST AND SOUTH



over many who "rob" their bees. It is astonishing how many pounds of inferior honey are offered to the consuming public. It is to be hoped that in the near future every beekeeper that sells honey will have enough self-pride, if not even pride in the industry, to put only first-class packages of honey on the market.

No beekeeper can afford to overlook any steps in the plan for successful wintering of every colony of bees. Added attention will be repaid as much with bees as with any other form of live stock. Stores will be the deciding factor this year. The Food Administration has rightfully set about to adjust the amount of sugar for feeding bees. Furthermore, there has recently appeared much good argument in the leading papers, showing that no artificial feed can entirely replace honey.

F. B. Paddock.

College Station, Tex.

* * *

In Florida This is the first year that Florida beekeepers have considered the question of wintering the bees on sugar stores. With honey selling at four to six cents a pound there was no inducement for us to sell our fall crop and replace with sugar; but now, with honey at 20 cents and more, there is a big profit to be made—if it is practicable. According to reports received, the Food Administration will allow us to obtain the sugar; but whether we should avail ourselves of the privilege is another question, which must be decided

by the individual beekeeper. If honey is of more value to the Government than sugar, our duty is clear, and we should take the \$3.00 per colony additional profit which the feeding of sugar would give. Undoubtedly our bees would winter well on sugar syrup; but they will do that in this climate on even the poorest grade of fall honey and in view of the sugar shortage Florida beekeepers should consider not only the money value but the economic value of their honey. We have all made bountiful crops this year and received extraordinary prices on extremely advantageous terms, and we can well afford to ignore the extra profit that the Food Administration allows us, and winter our bees on honey as heretofore. There is another consideration that must not be lost sight of. If we feed sugar, we must do it so sparingly that none will be left over in the brood combs to be carried up and mixed with our orange honey, to cause trouble with the Pure Food Law. This will be extremely difficult, as the orange flow comes so early that more or less of the winter stores are always carried into the extracting supers. I am taking up this feeding proposition with the Food Administration, with special reference to Florida, and hope to have some authoritative information by next month.

Very few crop reports have arrived, but there has been a very heavy yield from partridge pea, and the prospects for a fall crop are excellent.

Harry Hewitt.

Apopka, Fla.



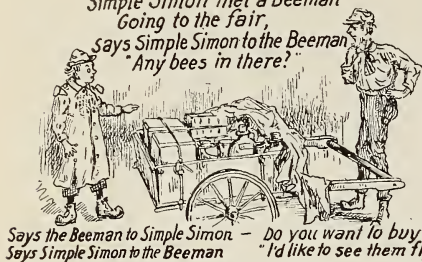
Chauncey Shinkle of Williamstown, Ky., is a patriot right. He sends the picture printed above, and says that the old family horse, the Ford runabout and the bees are all doing their utmost at home to help feed this nation and its allies, and he himself is soon to be on his way to France and that he goes gladly. He closes his letter to Gleanings by saying: "Good bye to the friends I have met thru Gleanings. I will soon be 'over there.' When the war is over I will be home again and working with my bees."

HEADS OF GRAIN

FROM

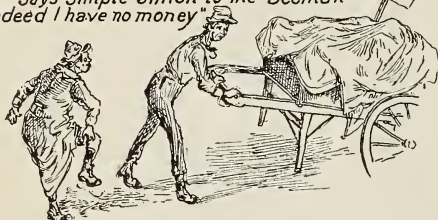
DIFFERENT FIELDS

*Simple Simon met a Beeman
Going to the fair,
says Simple Simon to the Beeman
"Any bees in there?"*



*Says the Beeman to Simple Simon — "Do you want to buy?"
Says Simple Simon to the Beeman "I'd like to see them fly."*

*Says the Beeman to Simple Simon
"I'll sell you, nice white honey."
Says Simple Simon to the Beeman
"Indeed I have no money."*



*Says the Beeman to Simple Simon
"I've hives to sell to day."
Says itching Simon to the Beeman,
"I've hives to give away."*

Working Hours of Honeybees.

That editorial about the bees gathering clover honey when the temperature was very low reminds me of something I have learned lately about the working hours of the honeybee. I am an outdoor sleeper, and over my porch this summer there is a cobaea vine. Often, on waking very early in the morning, I have heard the bees working on the blossoms of this vine. One morning earlier in the summer I looked at my watch and noted the time. It was **ten minutes past five** and not yet fully daylight! I had just waked up, so I don't know how long they had been working before that. Our bees are not New England bees either. I suppose they did not have to travel far, as there are a few hives not more than 75 feet away. But our summers here on the coast are cool, and at that time in the morning the temperature is decidedly not what we have always considered suitable for working with the bees. I have also noticed the bees humming about these flowers in the evening when it was too dark to read. (Miss) Flora McIntyre.

Ventura, Calif.

Disease Ravages in British Columbia.

European foul brood is epidemic thruout a large portion of the lower mainland of British Columbia. Parts of Langley, Surrey, New Westminster, Point

Grey, S. Vancouver, and Kerrisdale have lost from 50 to 75 per cent of the bees. The opinion is that the disease has been in the district during the past few years in an incipient stage, but, owing to the fact that few knew the disease (thinking it was chilled, sac, or starved brood), it was rampant before the uninitiated were aware of its presence. The disease appears to have gone the usual course, wiping out the blacks and hybrids, and badly affecting the Italians. The slogan of the local inspector, F. Dundas Todd, has been: "We in British Columbia make no pretence of curing foul brood; we simply wipe out the colony and hive by fire," and "when burning you know the end." In spite of this we have now the following remedy handed out to men who have been told there was only the burning remedy: "TREATMENT FOR EUROPEAN FOUL BROOD: First day—kill queen; same day, order Italian queen from queen breeder, to be mailed within 14 days; eighth day—destroy all queen cells; 21st day or later—introduce new Italian queen; it is useless attempting to cure weak colonies; all combs badly affected with disease should be removed from the hive and burnt."

Cloverdale, B. C.

Williams Hugh.

BEFORE



AFTER EATING
**Martin's Sage
HONEY**

THE BEST THAT MONEY CAN BUY

JOHN MARTIN

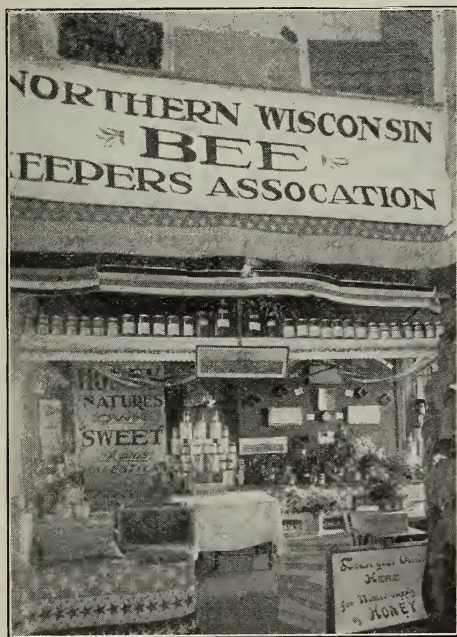
TORO CREEK

MORRO.

CALIF.

[An example of clever advertising that explains itself—if looked at upside down, as well as upside up as here printed.]

HEADS OF GRAIN FROM DIFFERENT FIELDS



These are fair times—and here's an attractive honey exhibit.

Do Bees Recognize a Failing Queen?

Supersedure is common enough among bees, but now and then

a peculiar case presents itself. While visiting E. E. Mott of Glenwood, Mich., I had the rare privilege of seeing two queens peaceably occupying the same hive, and, indeed, the same comb. As we approached a certain hive Mr. Mott remarked that the bees were superseding their queen. Upon removing a frame of brood in quest of young larvæ with which to graft cells (for the queen was a valued breeder), we found her laying scatteringly, often dropping eggs without backing into a cell, while some cells contained three or four eggs or larvæ. Upon the same side of this comb was also a young queen apparently about ready to lay. Neither queen seemed to pay any attention to the other.

The mother was one year old, and Mr. Mott gave her to me, suggesting that I might raise a few queens from her to use in requeening my yard. As she is a beautiful golden and of exceptional breeding stock, I was much pleased to give her a trial. So on July 15 I removed the queen from a good colony and introduced her by the cage method. On July 23, nine days later, I found her accepted and laying scatteringly as before. Imagine my surprise to

find 15 finished queen-cells indicating the bees' intention to supersede her. There were no cells started previous to her introduction, and I never had cells started before with queen caged. Now, how could the bees have recognized her as a failing queen without giving her a trial? C. V. Rice.

Lawrence, Mich.

[I do not think the fact that the queen was failing had anything to do with the starting of those cells. I have been taking tested queens from our strong colonies and introducing untested queens the same day or the following day, and several times I have found on checking up these colonies 5 or 6 days later, that they had queen-cells under way and the queen safely introduced and laying. I do not think these cells were started under a queenless impulse, because the colonies are without a queen only a few hours, and also because the bees complete the cells. They are usually destroyed about the time they are ready to hatch. This I think is done by the laying queen. Twice during this season I have found where the virgin hatched and killed the queen. I introduce in Miller cages with a strip of cardboard over the candy. It takes about two days for the queen to be released. It seems probable that to have a queen in the hive and no eggs layed for this length of time would be a condition similar to that of a failing queen, and might start a supersedure impulse, which would account for the starting of these cells. M. T. Pritchard.

Medina, O.

Results of Burying 67 Colonies.

I wrote you a description in Gleanings for February, 1918, page

102, telling you how I buried my bees. I am now going to tell you how they came out. I weighed them all (67 colonies) on Nov. 21 and 22 last. They averaged 62 pounds. It started snowing the night I buried them, Nov. 23, and the ground was covered with snow till the first of April. Where my stands were, the snow in some places was seven feet deep. I had to shovel the snow away to get it melted, so as to get my bees out onto the stands. The snow was not all away till Apr. 15, when I put them out.

These bees had not seen daylight for 4 months and 23 days. We took them out after dark, and during the next two days they were carrying pollen. We weighed them on the second day they were out. There were 65 alive and in good condition. They averaged 48 pounds. Of the two lost one had lost its queen; there were no bees in the hive, and all the honey was left. In the other hive the cluster was on one side of the hive and had 18 pounds of sealed honey. It took about 14 pounds of honey

HEADS OF GRAIN FROM DIFFERENT FIELDS

on an average to winter these bees. Twenty of these colonies were from two-pound packages bought from M. C. Berry, Hainsville, Ala., May 27, 1917. So no one need be afraid to buy bees from the South—if they can get them. They are all Italians in 10-frame Langstroth hives. Bees did not winter very well in cellars in this part of the country. N. Summers.

Winchester, Ont., Can.

south is wide open. Of these colonies 32 came out all right.

In my locality I would not be bothered with cases of any kind, if they were put on free of cost. Now, don't understand that I am applying this to the whole of Virginia, for I refer only to Henry County. In the State of Virginia, we have all kinds of climate, but here we seldom see 10 degrees above zero, and not more than once in 15 years does it go as low as zero.

In the apiary that I purchased the hives were not in winter cases, but were placed in groups of four. Not a single colony lived that stood in a northeast corner of a group. Fourteen of the nineteen that withstood the winter faced the southwest (not the proper direction, but the best in this yard).

Besides suitable windbreaks and proper facing, I believe it is important that plenty of honey be left in the hives. If 10 pounds more honey is left than is needed, it will be there for the following winter. Ten pounds extra at 20 cents would be worth two dollars, which at six per cent would amount to 12 cents per colony, and this seems to me a cheap enough insurance.

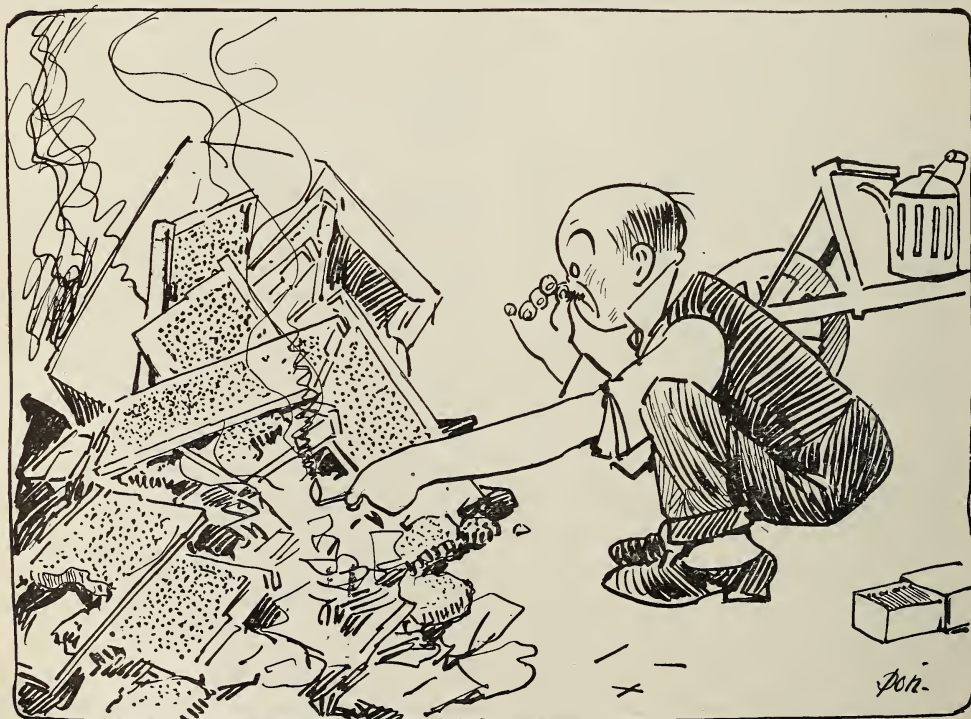
Axton, Va.

D. F. Dunlop.

Which Direction to Face the Hives.

Last spring I purchased an apiary that had not wintered well.

About 55 per cent of the colonies had died, tho there were plenty of stores left in the hives. The apiary was on a southeast slope, which gave the hives some protection, but one-half of the hives faced northeast and one-half southwest, both directions being bad in this section of the country. All hives here should face south and be on a southern slope with a windbreak of some kind west or northwest. Four miles from this apiary, I had 35 colonies all on a southern slope, all hives facing due south and well protected on the north and west by woods, while the



THE BACKLOT BUZZER.

That bacillus of European foul brood has a yellow streak and a progeny that don't fight fair. Rae says, "Better change it from bacillus pluton to Bacillus Teuton."

THE annual meeting of the Northern Illinois and Southern Wisconsin Beekeepers' Association will be held in Memorial hall in Rockford, Ill., on Tuesday, Oct. 15. All interested in bees are invited to attend. B. Kennedy of 2507 West State street, Rockford, Ill., is secretary.

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The Wisconsin State Beekeepers' convention will be held Dec. 5 and 6, 1918, in the Senate room of the State capitol at Madison, Wis. N. E. France of Plateville is president, and E. Hassinger of Greenville is secretary.

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Frank C. Pellett, formerly field editor of the American Bee Journal, is now assistant editor, and has moved to Hamilton, Ill. The position probably means that, so far as the Messrs. Dadants are concerned, Mr. Pellett will have largely the editorial management of the American Bee Journal.

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The National Beekeepers' Association will hold its next convention at Chicago, Ill., on Feb. 18, 19, and 20, 1919. Floyd Markham, secretary-treasurer, of Ypsilanti, Mich., writes that he had expected to have part of the program ready for publication this month, but correspondents have been slow in answering his letters and so he has to delay announcement of the program till later.

* * *

The annual meeting of Adirondack Beekeepers' Association was held on Aug. 23 at the apiary of M. G. Devine at East Lake George. About 75 attended and 20 new members were enrolled. The business meeting and election of officers was held before a basket luncheon was served. Officers elected were: A. W. Cary of Glens Falls, president; M. G. Devine of East Lake George, vice president; H. E. Gray, Fort Edward, secretary-treasurer.

* * *

The Western New York Honey Producers' Association will meet in a two-days' convention at the Genesee Hotel, corner Main and Genesee streets, Buffalo, on Friday and Saturday, Nov. 1 and 2. A very interesting and instructive program is being arranged. As the business of beekeeping is undergoing a marvelous evolution, it is the object of the association to promote and develop those methods that make for efficiency in both production and selling. Programs sent on request to Howard M. Myers, secretary, Ransomville, N. Y.

* * *

The Crop Report Committee of the Ontario Beekeepers' Association met in Toronto on Thursday, Aug. 8, 1918. Owing to the serious situation in regard to sugar for fall feeding, the Executive Committee of



the Association was also called together for consultation. Reports were received from over 500 of the members in Ontario and from correspondents

in Quebec and the United States. The Ontario average per colony reported was 62.4 lbs. The most disturbing feature in the market situation is the ruling of the Canada Food Board that no sugar can be obtained for fall feeding. This means that from 25 to 40 per cent of the average crop must be held for feeding back to the bees. In view of these conditions, the committee recommends the following prices: Best quality light extracted, wholesale, 24c to 27c per lb.; same at retail, 5c to 8c higher; No. 1 comb, wholesale, \$3.00 to \$3.75 per dozen; No. 2 comb, wholesale, \$2.00 to \$3.00 per dozen.

* * *

The Field Day of the Federated Massachusetts Beekeepers' Association, Inc., held jointly with the Eastern Massachusetts Beekeepers' Association, at the Norfolk County Agricultural School at Walpole, on Aug. 7, drew a large and enthusiastic audience to hear the excellent program. After the address of welcome by the director of the school, Mr. Kingman, J. E. Crane of Middlebury, Vt., delightfully explained the curious marriage customs of the different flowers, and by his charming tale brought home the vast service rendered by the honeybee, apart from her value as a honey-gatherer. Following Mr. Crane were practical talks by Arthur C. Miller of Providence, R. I., on "The Wintering Problem in New England," Allan Latham of Norwichtown, Conn., spoke on "Pasturage," and Dr. Burton N. Gates of Amherst on "The Beekeeping Situation Today and the Future of the Industry in Massachusetts." Dallas Lore Sharpe also contributed a few words. The new importance and dignity of the honey industry was emphasized, also the value of the bee in the program of intensive agriculture necessary in New England.

The announcement of the retirement of Dr. Burton N. Gates from the office of Inspector of Apiaries and Associate Professor of Beekeeping at the Massachusetts Agricultural College caused expressions of real regret from all sides. Dr. Gates has built up an apicultural department at the college second to none in the country, and while the beekeepers of the State felt that his call to a wider territory was to be expected, his loss to Massachusetts will be widely felt.

A rising vote of thanks was tendered Dr. Gates for the inspiration and aid which he has been to the beekeepers of Massachusetts, and resolutions appreciative of him adopted.

Dr. Gates is to become provincial apiarist of Ontario, the position formerly held by Morley Petit.

QUESTIONS.
—(1) Is it really of much importance to

requeen colonies which have queens two or three years old? (2) I find that my swarms, if strong, very often store more honey than the old colony. If there is any great advantage in a young queen, this would indicate that the old queen remains with the old hive. Is this true? Louisiana. John M. Ware.

Answers.—(1) It is very important to keep only young queens in the hive. Colonies having old queens are much more inclined to swarm and usually do not work with the vigor of those colonies having young queens. Of course there are some exceptions to this, but, as a general thing, we find it does not pay to keep queens more than two years, and we prefer those only one year old. (2) When a swarm issues the old queen goes with the swarm. The reason that this new swarm with the old queen stores more honey than the old swarm is simply because the old working force is with the new swarm. In the old hive there are only brood and young bees, and but very few workers.

Question.—My bees are wintered in the cellar. Please tell me where to put the frames of honey—on the sides, in the center, or alternate the combs of honey and brood? Nebraska. Fred Siman.

Answer.—The combs should not be alternated, as the frames of brood should be left together. Aside from this, we do not think that, when wintering in the cellar, it really matters where the honey is placed.

Question.—Could you tell me of a substitute for honey or sugar to feed the bees for winter? California. A. F. Manz.

Answer.—For suitable winter stores we know of no substitute for honey or a sugar syrup. If anything else is used for stores, the bees will not winter well and will probably contract dysentery before spring.

Question.—I have today found one of my hives queenless, and the colony not very strong. The only brood in the hive is drone brood. Do you think it advisable to requeen at this time of the season? Ohio. Albert Supply.

Answer.—Such a small colony, made up of old bees, it would hardly pay to requeen at this time of the year. Young bees are necessary for safe wintering. We suggest that you kill these bees and give their stores to other colonies.

Question.—After the close of the honey flow, I introduced several queens in mailing cages. Seventy-two hours after introducing I opened the hives and found some of the queens released and others not released, but an excessive number of queen-cells present in both cases. When destroying the cells I precipitated several bad cases of balling and lost three queens thereby. Now wherein was my practice faulty? Should I have left the cells, trusting the queen or the bees to destroy them? California. E. O. James.

Answer.—After the introduction of

GLEAINED BY ASKING

E. R. Root

queens, colonies do sometimes start queen-cells, but the queens may usually be trusted to destroy such cells, if given sufficient time. It is generally not

safe to open a hive in less than five days after a queen has been introduced; and at a time when the bees are especially cross, it would probably be safer to allow even a longer time than this to elapse before examination of the colonies.

Question.—What sort of place must I have to keep my bees in this winter? I have a good cellar, but it freezes. It is dry and free from mold; and then I have a room finished off from the stable floor that is clean and dry. It is double-floored, and boarded and clapboarded, 8 by 20 feet. Maine. H. L. Cray.

Answer.—Rather than keep the bees in a cellar that goes below 32 degrees Fahrenheit it would probably be better to winter them outdoors or in a room in the barn, as you suggest, in double-walled hives with a four-inch tray of packing above the brood-chamber. If in the barn, they should have an outside entrance, so that they may be able to fly on warm days in the spring. If you decide to place them in the barn, they should not be put there until after the bees have stopped flying in the fall. If they have a flight in less than two weeks after they have been moved such a short distance, they would be apt to return to the old location and be lost.

Question.—Can you tell me how to avoid robbing when using the Boardman feeder? Long Island. E. M. Barteau.

Answer.—These feeders are now made in one piece and not nailed together as previously. This helps somewhat in preventing robbing, but in our own apiaries we have been using a plan that we are sure you will be glad to try. Instead of placing these feeders at the front entrance we cut an opening at the back of the hive just the right size to insert the feeders. In this way there is not room for the admission of a single bee, and not one drop of syrup is exposed. This works well and does away with the robbing trouble entirely.

Questions.—(1) I wish to improve my bee cellar by putting in an underground ventilator. How far must the trench run from the cellar to thoroughly warm the fresh air? (2) How many feet deep should it be? (3) How many inches in diameter? (4) What material is the best and cheapest. (5) Do you think 8-oz. duck is heavy enough for covers on hives where the temperature stays around 40-42 degrees? New York. Walter J. D'Allaird.

Answer.—(1) The trench running from the cellar should be about 150 to 300 feet in length, depending on the soil and on the depth beneath the surface. (2) The underground ventilator should be on the level with the bottom of the cellar and then grad-

ually come to the surface at the outer end. (3) The sub-earth ventilator should be from 4 to 6 inches in diameter. (4) The upright ventilator should be a wooden shaft extending up thru the roof, and the sub-earth ventilator should be made of tile or sewer pipe. (5) The 8-oz. duck is all right for covers, but if this is used, the entrance should be contracted to two or three ins. by $\frac{3}{8}$ in., or perhaps to four or five $\frac{3}{8}$ -in. holes. If sealed covers are used, then a full entrance should be given. The main point is to have an entrance of such a size that the temperature of the cluster will be about 57 degrees Fahr.

Questions.—Will you please inform me what size and kind of nuclei the most scientific queen-breeders are using today. I have been using twin nuclei with four small frames in each compartment, but these give the queen too little space to lay in, run short of stores quickly, and cause a more or less unsettled condition among the bees. Do you think I would be better satisfied with a 10-frame hive divided into three or four compartments?

California.

E. M. H.

Answer.—The size of nuclei for queen-rearing will depend upon the size of your queen-rearing business, and how long you will have to hold the queens before mailing them. When the business is large and queens can be sent out the day they lay, the baby nuclei are preferable. The queens can be found more readily, they take fewer bees, and are more kindly disposed toward virgins or cells given them. But with baby nuclei queens must be removed the day they begin laying. When the breeder's orders come in irregularly, such nuclei are not as satisfactory as two-frame nuclei using full-sized standard Langstroth frames. Queens can be kept in these indefinitely. They are easier to make up, and at the close of the season can be united with other nuclei near by. On the other hand the baby nuclei, as the season winds up, if there are any bees left, are not worth anything. A 10-frame hive divided into three compartments, each having an entrance on a different side or end of the hive, is very satisfactory. If one has a small business, it is preferable to the large-sized nuclei on separate stands. It has the great advantage at the close of the season that the division-boards can be removed and the nuclei united with one queen.

Questions.—Is it sufficient to shake bees having American foul brood, only once and onto full sheets of foundation?

I have some frames containing full sheets of foundation which have been in supers over American foul brood colonies. Some are partly drawn and some not drawn at all. Are these safe to use? I also have some filled with honey in the super. These would be infected, would they not?

Pennsylvania.

C. R. H.

Answer.—We do not believe that ordinarily it is necessary to shake twice for the treatment of American foul brood. One shaking is a severe enough strain on a colony. If any rare case should later show evidence of the disease, it could be treated a second time. But in all our years of experi-

ence, we have never found a second shaking necessary, and we consider it only a waste of material and time. In supers of foul-brood colonies, the frames containing full sheets of foundation would in all probability be free from disease. But it would be hardly safe to use them, and much less would it be safe to use those partly drawn out which contain honey. We would consider any combs, especially if they contain honey, in supers over colonies affected with American foul brood, as decidedly unsafe for use again.

Question.—Objection has been made to solid combs of stores, on the ground that these cold slabs of honey are a decided hindrance to good wintering. Now, it has lately occurred to me that solid combs of stores are beneficial instead of detrimental, for two reasons: (1) The more solidly the combs are filled with stores, the less hive space there is to be heated. (2) A solid comb, when once heated, retains its warmth much the same as a warm brick. Is my reasoning correct?

Missouri.

J. H. Fisbeck.

Answer.—As for the extra hive space to be heated, less heat is required to heat air than to heat honey. We have no fear of over-emphasizing the importance of retaining the cluster unbroken and undisturbed thruout the winter. As the honey is gradually eaten, the warm compact cluster slowly moves upward. The parts of the combs included within the cluster have their cells tightly wedged full of live bees, which is a much warmer arrangement than cells filled with honey. Please note that during very cold weather, the principal difference in compactness at the center of this winter cluster, and that of a cluster hanging from a tree, is in the thin midrib and layers of wax and cocoon walls separating adjacent cells.

Question.—When packing in the quadruple case, why would it not be a good thing to go a step further, and, after packing as recommended, placing two entrances east and two west, put on top of these four to six inches of dry sawdust and then another quadruple case with entrances north and south, and then four to six inches more of sawdust and another case on top with entrances east and west, the same as the lower tier? This would make a case holding 12 colonies, and only requires the material for one roof and one floor. Of course, the middle tier would have an unfavorable direction of facing, but this disadvantage would be more than offset by the added warmth of position between the first and third tiers.

Angus Edwards.

Ohio.

Answer.—Some examination during the spring will be desirable before it is time to unpack. Therefore we do not think it advisable to tier them up three high, as you suggest, for it would be very difficult and unhandy in the spring to be obliged to unpack and repack, to say nothing of lifting off eight colonies in order to examine the four lower ones.

Question. Please send me instructions how to keep my old queens so as to use them if some of the new queens fail to get introduced.

Pennsylvania.

B. F. Forsyth.

Answer.—Just cage them in separate cages and place the cages on top of the frames of another colony.

"I WINTER my bees in the cellar under the house, and can hold it to 42 degrees from the time they are put in until it becomes warm in the spring when it gets up to 47 or 50. I have lots of ventilation which is used as needed, and the bees came out in fine condition last spring as they went in with lots of old bees. I didn't lose a colony and not many bees."—C. S. Williams, Ingham County, Mich.

"'Bee raiser' is a new one on us."—The Tillson Co., Ltd., Tillsonburg, Ont.

"The poorest year in 40 years. Bees have no honey at all."—Hohmann, Dubuque County, Ia.

"Our honey crop in this section is a total failure."—Franz E. Roese, Crawford County, Kans.

"I would keep bees if there wasn't a cent in it. They seem like a part of the family."—D. F. Dunlop, Henry County, Pa.

"Please stop my queen advertisement as I have to go to the army in a short while."—L. L. Forehand, Lowndes County, Ala.

"This has been a very hard year on bees as well as on beekeepers in southwest Missouri."—Claud Barker, Jasper County, Mo.

"Can you inform me as to whether I can buy a live king bee, or how to raise one?"—H. A. Zartman, Northumberland County, Pa.

"May Mr. A. I. Root be spared many a year to continue to teach the world his good works."—H. W. Schumann, Queensland, Australia.

"I have a swarm of Holy Land bees that have produced 128 pounds this year—about three times as much as any other swarm."—Theo. Bayless, Hancock County, Ohio.

"It will prove a good investment to give the boy or girl a colony of bees for their 'very own.' Ownership increases interest."—Edwin Ewell, Washtenaw County, Mich.

"I have sold several tons of dark amber fruit honey for 17½ cents per pound. I believe there will be a very good crop taken from the irrigated alfalfa districts of central and northern California."—J. E. Wing, Santa Clara County, Cal.

"Extension work is going along in fine way in Michigan. Beekeepers are beginning to see the need of greater co-operation. Our great clover regions spell opportunity for the man who knows how."—Edwin Ewell, Washtenaw County, Mich.

"From reports gleaned from southern California (10 counties) it looks as if the

BEES, MEN AND THINGS

(You may find it here)

crop would be about 65 per cent of last season. In some localities it is a bumper, while in others it is barely enough to winter bees thru. Prices are

running about 17 to 19 cents, with very little honey moving."—G. W. Bereaw, Los Angeles County, Calif., Aug. 17.

"This year's prospects so far are quite fair. Altho unusually late flow, yet the quality is far superior to any previous in our eight years here."—Amos Thorstensen, Fort Bend County, Tex., Aug. 1.

"The Nebraska State Beekeepers' Association just held at our State Fair was a great success, and soon our Association will be again in its ranks with neighbor associations as a live one."—O. E. Timm, Douglas County, Nebr.

"Another cure for foul brood is to breed only from your long-lived queens. If you have a queen that is eight years old, you have a jewel, and save every egg from her for a queen-cell."—C. A. Neal, Bee Specialist, Grant County, Ind.

"Dr. P. A. Mariotte has, I dare say, the highest colony of bees in captivity. He keeps an observation hive in his dental office on the tenth story of the Thompson Building at Oakland, Calif."—E. O. James, Alameda County, Calif.

"The majority of beekeepers here have had an excellent season. The average price obtained in the open market was from 16 to 18 cents, and in a few instances sales were made as high as 26 cents a pound."—R. W. Brickell, Dunedin, New Zealand.

"The honey crop in this locality was very good. Many people are buying honey this year to prepare for a sugar shortage this winter if it comes, and so the demand has been larger than the supply."—Sherman Goodlander, Wabash County, Ind.

"About one-fourth crop of honey here the way things now look. Will have to feed back the most of it. We are asking 25 cents a pound for comb. There is not much extracted honey produced in this part."—H. Cuddebach, Barry County, Mich.

"There is no honey in this neighborhood, and I could sell thousands of pounds if I only had it. The ground was white with clover, but the bees didn't work on it as there was no nectar in it. If the bees get enough to winter over I shall be satisfied."—L. D. Goelzer, Racine County, Wis.

"The beekeepers of this vicinity have organized the Henderson County Honey Producers' Association. The objects of the organization are to co-operate in Italianizing

the bees of this vicinity; in securing more honey and a more nearly uniform price both for the producer and the consumer."—R. R. Banta, Henderson County, Ills.

"I believe that in many parts of Mississippi we have an excellent opportunity for beekeeping. This is especially true in the northeastern and northwestern sections of the State."—R. W. Harned, Entomologist, Mississippi Agricultural and Mechanical College.

"It has been a fairly good honey season in this locality. Clover commenced earlier and lingered longer than usual with scarcely a break between the summer flow and fall bloom. A cold July-August spell had a retarding influence but the present month, September, is fine."—Lewis P. Tanton, Charlottetown, Prince Edward Islands.

"Now here in Tennessee when we have a honey flow it is generally one of comparative slowness and is much longer drawn out than those of the States further north. But our warm winters are just as fatal as our cold ones, and I find that my greatest loss is invariably caused (1st) by an old and failing queen; (2d) deficient stores; and (3d) too much room."—J. A. Barden, Tennessee.

"I believe the peanuts growing hereabouts are the source of an excellent honey flow equal to our northern clover honey. * * * Have learned quite a lot about this muck land since we came here. There is one type of it which will raise practically nothing until it is worked up and rotted a few years. Another type, on which the elder grows, is fine and grows enormous crops."—Leon C. Wheeler, De Soto County, Fla.

"Just a few words from a beginner. I started with two packages of bees. Each package contained two pounds. Now have a surplus of a hundred sections of honey and also three more hives of bees. I started bees on sheets of foundation. It looks like they will winter fine. I got one package in the first part of May; the other, in the last part. So I think that is pretty good for a beginner for the first handling of bees."—W. C. Young, Chicago, Ill.

"That word *vitamine* is derived from '*vita*,' Latin for life, and '*amine*,' signifying that the substance is kin to ammonia. The definition given in Stedman's Medical Dictionary is: 'One of a group of substances of unknown composition present in very small amount in natural foodstuffs which are essential to normal metabolism, and the lack of which in the dietary causes beriberi and other deficiency diseases.'"—Minneapolis Journal, June 17.

"We have no clover honey here. Our main crops are collected from the eucalyptus, of which we have about 12 different varieties in this locality. They bloom generally from July till April, and during that time is our good season. We do not pack

our hives here for winter, as plenty of stores is all that is necessary to have them winter well. We are right in the middle of winter now."—F. Brown, New South Wales, Australia, July, 1918.

"Beekeepers have been accused of wishing to feed sugar only that they might liberate honey to sell at a higher price. They have even been called a nasty name which we do not think should ever be applied to a bona fide producer of food—this, of course, thru a lack of understanding of the facts of the case. While there is no use denying that the present difference in price carries weight, and is the most weighty incentive to increase production, the best beekeepers fed sugar just as freely twelve years ago when there was very little difference in the wholesale prices of the two, and would prefer to feed it today if it cost as much as the price of honey."—Canadian Grocer, Aug. 23.

"The Demuth-Pritchard plan of using two or three hive-bodies or two hive-bodies and a super for an outside case and an inside case of $\frac{3}{8}$ -inch lumber made large enough to hold six frames standing on end, which of late has been referred to and commented upon in Gleanings, is open to several objections, among which are these: The first cost of material and labor in making the cases; the time and labor spent in 'fussing' with the packing and unpacking; the storage room, and time and labor required to store the surplus frames (that is, the two or three frames removed from the brood-chambers). Farmer beekeepers do not have time to do much extra work."—F. K. Massie, W. Va.

"An interesting decision was handed down during the week by the Appellate Division of the Supreme Court of New York. It was in the test case as to the legality of saccharine as a substitute for sugar. The defendant was the Excelsior Bottling Works, who was prosecuted by the New York Health Department for using saccharine as a sweetener in drinks instead of sugar. The concern was convicted in the lower court on the ground that the New York State Health Law considers saccharine a harmful adulterant and the case was appealed. The court holds that the use of saccharine, if fully and fairly disclosed on the label, does not constitute an adulteration within the meaning of the law, and goes so far as to say "since saccharine is not injurious to health its use may be regulated but cannot be prohibited under the exercise of the police power." This decision will probably affect the position of saccharine all over the country."—Modern Merchant and Grocery World.

"Colonies will average about 50 pounds; had only one rain in 12 months. There are wonderful drought-resisting honey plants in this Santa Ynez Valley, including button sage, several species of goldenrod and very numerous other wild flowers, except beans and some alfalfa. Main flow which lasted

about a month was from sage, yielding the only surplus."—F. P. Heston, Santa Barbara County, Calif.

"Many of the eastern confectioners, finding that they can not get sugar for their products, are sending to Arizona for strained honey. Alfalfa bloom and flowers now furnish much of the sweet substance for honey production."—Los Angeles Times, Aug. 27, 1918.

"Gleanings is very refreshing in its 'Our Homes' Department; its anti-tobacco cogitations, etc. Would be glad if you would tell the venerable Dr. Miller, if you get a chance, that I am frequently on the brink of breaking the commandment as per Exodus 20:5, 'Thou shalt not bow down thyself to them,' etc. There is the remembrance of another Scripture passage which says, 'The hoary head is a crown of glory, if it be found in the way of righteousness.'"—W. E. Welch, Union County, S. D.

"It has been about the worst honey season here I can remember—less than one-tenth of a crop. Last week I was called to Madison by the Sugar Board which was receiving a mass of letters from all over the State, telling of bees starving, no honey, and that the beekeepers must have sugar to feed. Because of sugar restrictions, many wanted sugar under excuse to feed bees, and some that they might extract honey and feed sugar."—H. H. Moe, Lafayette County, Wis.

"In our outyard district of clover bloom, colonies have made fairly good averages of both extracted and comb crops. Our home markets do not use honey as in former years owing to advance in prices, but it is up to us to dispose of our surplus in the open market, thus helping do our part in supplying the nation's need for sweets. My three sons and other's sons are doing their part (at the front) and we who are standing back of our boys can do something toward supplying the needs of war."—Chas. L. Hill, Atlantic County, N. J.

"Sweet clover is coming into its own in this locality for pasture. A 13-acre field of sweet-clover pasture, on which I moved my bees July 20, yielded over 40 pounds to each colony since that late day. The cows on this pasture have had nothing else to eat than what they got in this sweet-clover pasture and were thin when turned into it in the spring. They are now fat enough for the butcher's block, are giving a fine flow of milk as they have done all summer, and give the finest sweet butter and finest flavored milk."—M. L. Brewer, St. Joseph County, Mich.

"I have been having trouble with June bugs. These bugs are fond of sweets, their favorites being figs and watermelon rinds; but since this food is about out of season they have gone to bee robbing. The fronts of my hives were covered with these pests,

and there were just as many inside of the hives. The bees put up a stiff fight, but on account of the hard shells of the bugs the bees could not do anything with them. I have placed wire entrance guards on the hives, and the bugs being much larger than the bees can not pass but cluster on the outside."—A. L. Christiansen, Chatham County, Ga.

"It has been a poor year for beekeepers over here. In June we did not get any rain and the vegetation dried up, and since the rain came it has been cold and windy every day. I believe I am the only person in this country that uses Langstroth frames and Root hives. I believe we are not far behind the United States in high prices. A hive with bees has cost \$30.00 this year. When it comes to windmill electricity we have many such windmills in Denmark, and last winter we wished that we had more, as our government allowed each family only one liter of petroleum per month. When it comes to beekeeping we Danes are far behind the Americans."—Louis Jensen, Hjelmerup, Fangel, Denmark, July 14, 1918.

"The kind, genial beekeeper host at a picnic I recently attended, is selling his honey by a reversed retail-wholesale system of price. He sells nice light extracted honey for five cents less at retail than he obtains net at wholesale. Only 20 cents per pound by the quart or gallon, but 25 cents per pound F. O. B. by the hundred pounds. How does he explain it? 'Oh,' says the generously considerate man, 'the people would not pay 25 or 30 cents a pound for extracted honey, and I want to keep my home honey trade.' Yet this beekeeper would say he is not keeping bees as a philanthropy. Moreover, there are other beekeepers in the same town who labor under the idea that to charge market price for sweet goods is fair business and no offense to society."—Clark W. Wilson, Madison County, N. Y.

* * *

A SOLILOQUY

(By an old bee lover, while watching his bees.)

While the summer's sun is shining,
We prepare our winter supply,
And if you take too much from us,
When winter comes we'll die.

Just let us pass the winter
As we are put away,
Then you can have the "super"
About the first of May.

The super is the top of our little store:
Just empty and return it,
And we will make you more.
Give us good foundation
And we will build it straight:
Then your conscience wont rumple,
When our honey is on your plate.

There are none of us that are carpenters,
We can neither saw nor nail,
But all of you may some day learn
We have stingers in our tails.

—F. L. SHARP,
Chief of Police, Biltmore, N. C.

It is to be hoped that by this time the bees have all been supplied with their winter stores, for feeding often starts brood-rearing; and breeding in October may result in bees too young to withstand the winter, such bees being sometimes pulled out at the entrance during chilly November weather. If September brood-rearing has been so excessive that feeding has been delayed, the stores should now be given as soon as possible. Extreme care should be taken that no robbing be started; for undue excitement at this time may seriously affect good wintering. As soon as the colonies are fed they should be packed for winter.

Wintering in Packing Cases.

There are several good methods of wintering (see pages 588-596); but we shall here describe only two, both of which have proved easy, safe, and well suited to the beginner.

The hive which in our April Talk we recommended to the beginner may be used for wintering, if it is placed inside of a winter packing case, which may be easily constructed of any cheap lumber available. The packing case should be made of such a size as to allow five or six inches of packing on the sides and top; and a wooden tunnel should connect the entrances of the inner hive and inner packing case. For packing dry forest leaves tightly packed are to be preferred, altho shavings or chaff or also satisfactory.

Wintering in Double-walled Hives.

Rather than go to the extra trouble of making a packing case many will prefer to purchase double-walled hives and save the single-walled hives for the swarms that will issue the following summer. It is quite handy to have a few single-walled hives for this purpose; and after the swarming season such colonies may easily be changed to double-walled hives. Those wintering in double-walled hives usually keep their bees in these hives the entire year, since they are warmer in winter and cooler in summer.

Contracted Brood-nests.

If the directions of our last issue have been followed, the brood-nest is already contracted to seven or eight frames which are crowded over to the warmer side of the hive. At the side of these frames is placed a tight-fitting division-board, and the space filled in with tightly packed forest leaves or shavings or chaff division-boards.

Upward Ventilation.

Over the top of the hive is spread a good mat of carpet or canvas which is held up

TALKS TO BEGINNERS

By the Editor

from the frames by four or five small sticks, four or five inches in length, placed crosswise of the frames in order to provide the bees with passageways

from one frame to another. The top of the hive is warmer than the lower part, and bees will, therefore, cross over just under the mat when it would be too cold to do so at the bottom of the hive.

Tray of Leaves on Top.

Above the mat should be a four- or five-inch tray of leaves. This tray is made slightly smaller than the telescope cover so that the cover will slip over easily. The ends of the tray are not quite level with the sides, thus leaving a better chance for ventilation and escape of moisture. On the bottom of the tray is burlap secured to the sides by wooden strips nailed on the lower inside edges. Fastening the burlap in this way allows the tray to fit tightly to the top of the hive, and prevents the wind from whistling in under the tray.

Size of Entrance.

The entrance should be contracted to two or three inches by $\frac{3}{4}$ inch, and should face away from the prevailing winds, which are usually from the north and west.

Need of Windbreaks.

On the windward sides of the colonies there should be shrubbery, trees, buildings, or even a high board fence with two-inch spaces between the boards so that the winds will be more or less broken up before reaching the hives.

A Few Last Suggestions.

Before leaving the colonies for winter all leaky covers should be mended and all hives given a good foundation up a few inches from the ground. They should also be left with a slightly forward tilt so that no water may collect inside.

From this time on thruout the winter, and until May in the Northern States, the colonies should not be disturbed in any manner, but left entirely alone; and if our directions have been carefully followed, the beginner need waste no time in worrying, but may rest assured that his colonies are in good condition.

The End of Beginners' Talks.

With this issue we complete our series of "Beginners' Talks." We shall, however, continue to publish articles that we consider especially helpful to those just beginning the work of beekeeping; and if any such have questions which our "Talks" have not cleared up, we shall take pleasure in answering these thru Gleanings or by personal letter.

ON page 956 of the December issue I said: "We are told by competent authority that more gasoline is being used just now every day than is produced by the whole wide world, and we get along only by drawing on our reserve stores. How long can this last?"

At the time I made the above statement I felt sure that a crisis was coming, both on coal, gas, and gasoline—more especially on the latter. I was moved to make the remark, largely because of the tremendous traffic in automobiles on Sunday, especially when the weather is fair. Even on the country road that goes past our home, automobiles were flying past so thickly and with such speed that I felt sure that few if any of the occupants were on the way to public worship, even if they did seem thicker than ever about church time. And I felt, again and again, that a large part of this waste of gasoline was unnecessary, especially so far as the Sunday traffic was concerned.

Now, I suppose I hardly need tell anybody who lives in our United States what happened on the first Sunday in September, 1918. A proclamation was issued, requesting that all pleasure trips on Sunday be stopped. Greatly to my surprise as well as pain, church-going was not even mentioned in the exceptions to the rule; and while I felt pained to think how it would interfere in many cases with church attendance, I felt glad to witness the alacrity with which our people, so far as I know, throughout the land, acquiesced in the rule. As it was brought about to win the war, there was nothing for patriotic people to do but to choose some other way to get to church or stay at home. What interested me particularly was that *electric* automobiles did not require any gasoline, and, of course, they were permitted to go as usual the same as horse-drawn vehicles. We are told that in the city of Cleveland close to 1,200 electrically propelled automobiles were on the streets. Now, this was well; but at the same time every one of those 1,200 autos depended on the consumption of coal, gas, or gasoline indirectly. I need not tell you there is almost as much worry,



Who hath gathered the wind in his fists? who hath bound the waters in a garment?—Prov. 30:4.

I will give unto you a land flowing with milk and honey—LEV. 20:24.

Butter and honey shall he eat, that he may know to choose the evil from the good.—ISAIAH 7:15.

if not quite, about the shortage of coal for the coming winter; and the wells that are producing *gas* in a large part of our country are giving out more or less. It is probably only a question of time when something *must* take the place of gas, gasoline,

or coal. Of course, quite a little is being done about clearing up stumps and useless trees in what remains of our forests. And here comes in the wind once more.

With the above preface I am ready to take up my travels in North and South Dakota, as given in our last issue. In my closing remarks I spoke of the expense of storage batteries. My good friend Forrest, mentioned in our last issue, has some storage batteries of his own make; and for stationary purposes I think they may do very well. When I asked him how he got his lead in porous shape for the leaden plates of the battery, he said he poured melted lead into water, and then flattened it out so as to make his plates.

After leaving Wyndmere, N. D., I called on O. J. Seiler of Jamestown, N. D. Mr. Seiler has recently installed one of the electric windmills. It is up on a little hill near where his various buildings are installed in the center of his great farm. Perhaps I should mention that, on account of the severe wind in both of the Dakotas, most residences have a plantation of trees about the buildings, barns, etc., to cut off these fierce winds from the northwest. Well, in this region there are a few native trees along the streams and rivers. Quite a good-sized stream runs thru the Seiler farm; and some beautiful large forest trees are found along this stream. As a protection, both to the stock and the people, the barns and other buildings are located down in the valley close to the stream. For this reason the electric current from the mill has to be carried quite a little distance by wire. Well, I can hardly take space to tell you of the different kinds of machinery worked by power from that windmill. I can give you some idea of it by telling you that his storage battery consisted of 90 Edison cells. I think he told me that he paid something like \$800 for the batteries alone; and these batteries store up suffi-

cient power to run almost any kind of farm machinery. Some place where I visited they told me they had toward a hundred head of cattle and horses on the one farm. It may have been the Seiler farm or it may have been some other. I think there are about a hundred pigs, big and little, on that same farm; and the electric current did almost everything where power could be needed in caring for this big stock farm.

By the way, I was surprised to find that on the Seiler farm the sun did not set until 9:15. In fact, friend Seiler says they can work by daylight, during the long days, clear up to 10 o'clock. And, again, about 5 o'clock in the morning it was light enough to go about. Of course, you will remember what has been said about "daylight saving." If you want more daylight than we get down here, just move up to North Dakota and you can have 17 hours with light enough to work, and only 7 hours of darkness. By the way, it was a common thing to see harvesting machines working out in the fields between 8 and 9 o'clock. I rather suspect that some of the good people up there, sometimes at least, work more than ten hours a day.

My next visit was at the home of our good friend T. A. Williams, Cleveland, N. D. You will find his letter in that same December issue for 1917. You will note there that he has a farm of 2,200 acres. He has been running an electric windmill longer, perhaps, than any other farmer in that vicinity. I was greatly interested in seeing the wonderful things mentioned in that letter above. But there were some other things that interested me as well. First, there were six boys in the family—great, big, stalwart men; and they took such good care of that 2,200-acre farm that the father could run around the country with his up-to-date automobile with such fellows as A. I. Root. One of the boys is in the navy; but he was at home when I was there, on his furlough.

By the way, lest you imagine that the farmers do not have any bad luck up in the Dakotas, I will mention that, notwithstanding they had had plenty of rain for the crops in and about Wyndmere, yet around Cleveland, 60 or 70 miles further west, they had had a severe drouth; and the drouth was finally broken, just before I got there, by a hailstorm 15 or 20 miles wide and 40 or 50 miles long, more severe than any previous one on record. Friend Williams' crops on his whole 2,200 acres were pounded down until the grain or heads of grain were cut off so that a great part of his crops, he thought, would not pay for harvesting. The wheat straw was standing

up, but, strangely enough, the hailstorm had cut most of the heads off, and there they were down on the ground. Some of the fields that were not hurt so badly were harvested with what I think they call a "header." It cut off the heads—at least what heads were remaining after the hailstorm. There were other places where the damage was so great that there was nothing to do but to plow it up for another crop; and I was greatly delighted to see those six boys manage the great tractor that pulled ten plows. It was run by means of a kerosene engine, and it was my privilege to stand on the machine while it went around the half-mile strip, turning ten furrows at once.

I have many times felt sad to think that the old good-sized families were getting to be out of fashion; and I was wondering if the war would not in some way help us to get back to the Puritanical style. I was the middle one in a family of seven, and we have five of our own. I have many times wondered what would have happened if we had had only one or two children or none at all. Well, it was positively a delight to me to look at and become acquainted with the six great, strapping boys or men; and I hope no one will object if I will say it was also a great privilege and a delight to talk with the one grown-up sister of the six boys. And it was *also* a delight to get acquainted with Mrs. Williams, and look over their beautiful home. I think it has been recently built and installed. With the advantage of electricity they have all modern appliances and improvements, some of them more up to date than you will find in the best city homes. The storage battery is in the basement, where they have an up-to-date furnace to keep every bit of that beautiful country home comfortable and happy, even during zero weather.

I forgot to mention that there was one plant on that big farm that was not much hurt by the hailstorm. That was his 30 acres of sweet clover. Of course it was pounded down into the ground; but it was already putting out new shoots when I was there, and promising to make the field in just a few days as green as ever. Friend Williams tell us in his letter something about his beekeeping. He has not very many bees as yet. In fact, he was so greatly in need of more that he sent the money to somebody for ten colonies of bees to be shipped in; but the beekeeper, after keeping friend Williams' money until the season was over, sent it back, saying he had been unable to fill the order.

Well, when we sat down to dinner friend Williams exhibited a Langstroth frame

filled and beautifully capped over with sweet-clover honey. In his honey-room he had a pile of hives not quite as tall as the one on the cover of our issue for September; but each hive contained nine or ten combs beautifully capped over, like the one of which I have been speaking. Well, they cut out a chunk of this same comb of honey for dinner. Now, I suppose the beautiful bread we had, was made from wheat of their own raising. It was not only the very nicest bread I ever tasted, but that sweet-clover honey was certainly the most delicious sample of honey that it was ever my privilege to put in my mouth. Mrs. Root was not there at the time, or else perhaps I would not dare say so, because she would say I was saying the same thing almost every day. To cap all, friend Williams showed me the nicest workmanship in hives and frames I ever saw. They were made by F. C. Bennett, who has a hive-shop in Jamestown. His arrangement for wintering is substantially a beautiful chaff-packed hive. With his 30 acres of sweet clover, of course there is a big opening for a good-sized apiary. In fact, the frame he exhibited indicates that the bees were short of room and had bulged the comb and filled every crevice in the hive with that beautiful well-ripened sweet-clover honey.

Just here I wish to remark that letting honey stay in the hive until the season is over produces a much better quality of extracted honey than where it is taken out during the working season, as we used to do.*

In our last issue I spoke of the level wheat fields around Wyndmere. The country around Jamestown and Cleveland is quite rolling, and it seemed to me that the locality is not so good for grain-growing as the eastern part of North Dakota. In fact, George told me that their particular locality was so celebrated for its great grain fields that it had been called the "bread-basket of the world."

On my return trip I visited the town of Mitchell, S. D. I have before mentioned on these pages that I have for many years owned a tract of half a square mile a mile out of Mitchell. This tract is a mile long, east and west, and a half a mile wide. On the north side of the strip a roadway was laid out years ago, but it is now unused, probably because there is a better road near by without hills and gullies. Well, a friend of mine who has charge of the place under-

took to run thru this old roadway with his automobile, but he was obliged to give it up and turn back when about half way thru. Now comes something of importance I want to talk about. This old unused road is, a great part of it, covered with a tremendous growth of wild sunflowers. I think I am safe in saying that many of them were as high as the automobile. They were not yet in bloom at the time of my visit; but they showed such rank luxuriance that I began wondering whether some use could not be made of them for feeding farm stock. By the way, there is a bee-keeper, Mr. J. W. Anderson, who has a farm adjoining, and a bit of his best ground had been allowed to grow up also to these great rank weeds—at least I believe they call them so there. The stalks were so heavy, and they grew so thickly together, that it would bother anybody to push his way thru. I could not find when there that an attempt had been made to utilize these wild sunflowers; but soon after I arrived home I found in the *Ohio Farmer* for July 20 the following:

SUNFLOWERS FOR SILAGE.

For the past three years I have been making an interesting experiment. Since it has turned out well it might not be out of place to give the benefit of the result to others. The experiment consisted of the use of sunflowers for silage.

Three years ago we put both corn and sunflowers into the silo; in the following winter we fed the silage to our dairy herd. The result was interesting and important. The cows ate the silage with more relish than they did pure corn silage. There was an increase in their milk flow and a marked change in the color of the milk. It became quite yellow, resembling the color of the milk of cows upon June pasture. It also remained the same color during the entire time when this silage was fed.

PLANTING THE CROP.

The crop was planted just as ordinary silage corn. The seed was composed of equal parts of sunflower and silage corn seed. The seed was planted with a corn planter and the corn was cultivated as a field of corn would be. About the first of September the sunflowers began to open and about a week later the entire field looked like a mammoth flower garden. The crop was allowed to stand until the tenth of October when nearly all the sunflowers were ripe.

HARVESTING THE CROP.

The corn and sunflowers were cut with a corn harvester, shredded and put into the silo. All parts of the sunflower plant were put in—stalk, leaves and head. Many of the stalks were an inch and one-half in diameter at the base, and from seven to nine feet tall.

FEEDING THE SILAGE.

The silage was fed just as corn silage, although less was required of the sunflower and corn silage than that of the pure corn. Sunflower seed is very rich in oil and is a very "filling" feed. Many people watched the cows eat the silage and were astonished to see them eat all of the stalk, for the butt of the stalks looks rather coarse and hard. However, these pieces of stalks were well soaked with the juice of the silage and the cows consumed every particle of the silage with relish. We have tried the experiment three different years and each time we have obtained similar results.

*Ernest, who overheard the dictation of the above, tells me to add that leaving the honey on the hive until the season is over is getting to be a common practice everywhere. See his remarks elsewhere.

ADVANTAGES OF THE SYSTEM.

We found no faults with the system and found many advantages and good points. Sunflowers yield about three times as much per acre as corn. This alone helps out to a great extent, especially in a year which is unfavorable for a good crop of corn. Sunflowers are harder plants and are easily grown. They also mature earlier than corn, and hence, if the crop is injured by an early frost it will not be a total loss. Sunflowers are able to withstand frost much better than corn. If it is impossible because of weather or labor conditions to fill the silo before frost the sunflowers do not dry up and break into fine pieces as corn does when that crop is frosted.—C. M. REED, Lake County, Ohio.

After reading the above I told the children and grandchildren I was going to visit that man, C. M. Reed, Perry, Lake Co., just as soon as I could get around to it. I submitted a copy of the above to our good friend Prof. Thorne, of the Ohio Experiment Station, and here is his letter in regard to it:

Dear Sir:—Replying to yours of the 21st, I would say that Dr. Wiley published in 1901 a "Bulletin No. 60 of the Division of Chemistry," in which he quoted from the New York, Maine, Vermont, and Canada experiment stations results of experiments with the sunflower. His conclusion from these was that the sunflower is a good feeding-stuff. In the *Jersey Bulletin and Dairy World* (Indianapolis) for Nov. 7, 1917, is an article on using sunflowers in the silo. From these I judge that the claims made in the slip you enclose are justified, except that the statement in the last paragraph that sunflowers yield about 3 times as much per acre as corn should be reversed, as we have no other crop that yields as much feed to the acre as corn, and the experiment stations quoted generally state that the yield is less than that of corn.

Yours cordially,

CHAS. E. THORNE, Director.

Wooster, Ohio, Aug. 26, 1918.

On receipt of the above I applied to the *Jersey Bulletin* people, and here is what I find in their issue for Nov. 7, 1917:

SUNFLOWERS AS A SILAGE CROP

When one gets to practicing intensified farming such as is followed in the Grand Valley, where the acreages are very limited, he gets to using his head and doing a lot of figuring to make the most feed possible grow on each acre of cultivated ground. Feeds produced upon small farms where land values are high, very high, must, of course, cost more than the same feeds produced upon large areas where lands are cheap and the labors necessarily are performed upon a big scale.

After some experimenting and a lot of study and reading, we came to the conclusion that to be successful in the dairy industry here it was necessary to adopt a breed of cows that would furnish the finished product, either milk or butter fat, at the least possible cost of production. Hence our adoption of the Jersey as the one breed suited to the conditions existing here.

After some more experimenting we have now come to the conclusion that sunflowers are the ideal dairy feed, just as the Jersey is the ideal dairy breed.

Late in the spring of 1916 we planted a small plot of ground to Russian sunflowers, and also persuaded a neighbor to do the same. At that time we did not have a silo, so when harvesting time came we cut the crop, putting it into an old unused outside cistern and let the mass ferment there. We

were perfectly satisfied that we had stumbled onto something that was going to make good as a dairy feed after we began feeding the silage.

The neighbor put his sunflowers into a silo and did not get them all fed out before his corn was ready to put up, so the corn was run in on top of the sunflowers. When the corn was fed out, and the change made to the sunflower silage, there was a decided increase in the flow of milk. Naturally, we wondered why, but after a study of the chemical analysis of the sunflower plant in the green state as compared with the analysis of the corn plant in the same stage, we came to the conclusion that it must be because of the fact that the plant was richer in protein and in carbohydrates, two food nutrients necessary to the production of milk.

Late last fall we erected a silo, so this year we had a place to put our crop of sunflowers, for of course we planted some last spring. After the crop was off the ground and the manure out of the yards, the plot of ground was again pressed into service for a second cutting of silage from the plant that has made Kansas famous. It only takes about 60 days to mature a crop to the siloing stage.

The ground is prepared and the crop planted very much as we plant corn, only thicker. On alfalfa sod ground this year that yielded us 30 tons to the acre, we planted in rows 32 inches apart with two seeds in hills 10 inches apart. Cultivation and irrigation were performed practically the same as for corn. The plant grows very slowly for the first two or three weeks, but say, after that the eucalyptus of California is not in it.

Before blooming, the pith in the stalk is sweet and very succulent. After the pollen appears, however, the resin flavor develops very rapidly, so we have believed it best to cut for the silo just as the field begins to break into bloom. However, this resinous flavor may all disappear after the mass has gone thru the fermentation stages, so there will be no danger of tainted milk. If this is true, and the plants are allowed to mature the seeds, there will be even more protein, for the seeds are very rich in that feed. We have noted that the mature green plant will produce tainted milk when fed to cows. They eat the plant very readily at any stage of growth, if it is run thru a silage or fodder cutter.

A person would naturally suppose that a crop producing such a prodigious tonnage would deplete the soil very rapidly, but this does not seem to be true. Last year where sunflowers grew, corn this year is bigger and a better crop generally than it is where corn was grown last year. Wheat growing this year where sunflowers and corn grew last year threshed out more bushels per acre where the sunflowers were than it did where the corn was. Apparently they feed on something not necessary to the best growth of either wheat or corn. In cutting into the silo we have found it best to cut in as short lengths as possible, one-fourth inch is best, and tramping thoroughly; keeping the center fullest, crowned to a height of about a foot. We have made up our mind that the silo is no place for a slacker. The man, or rather men, must be goers in order to have a good job of tramping done.

In feeding the sunflower silage, it will be found that cows can not, or at least do not, eat as much in bulk as they will of the corn silage. We believe this to be due to the fact that it is richer in feed value. We have found feeding the silage to be more like feeding a concentrate rather than a roughage.

Nov. 17, 1917.

GEO. LA GRANGE.

Below is something up to date from the same party:

Dear Sir:—In the article referred to in *The Jersey Bulletin* I intended to say that the sunflowers which yielded 30 tons per acre were planted on alfalfa sod, intending to convey the idea that on

poorer soil the seed should not be planted so thickly. You will note the article is on "Sunflowers as a Silage Crop" and the only reference that is made to alfalfa is in speaking of the sod ground on which the big crop was raised. The sunflower is getting to be a great silage crop in western Colorado. The county agent of Montrose County ran an excursion one day recently to that part of his county where something over 300 acres were growing. This is the first year of sunflower planting in that county; but, wherever the crop has been tried, it has been voted a success. Montana had such good success with their trial plots last year that they are publishing a bulletin on the subject. I have noted bees take kindly to the flower; but as it is impossible here in the orchard districts to raise the bees (on account of the spray poisoning), I know nothing of its value as a honey plant. Thruout this inter-mountain country where the sunflower has been raised for silage, a yield of from 20 to 40 tons per acre has been reported, notwithstanding the statement of Director Thorne.

GEO. LA GRANGE.

Grand Junction, Col., Sept. 7, 1918.

BOTH MILK AND HONEY FROM ONE AND THE SAME PLANT.

Now, friends, you can see what I am driving at. Forty years ago or more we sold considerable quantities of sunflower seed as a plant furnishing not only honey but valuable food for chickens; and I have just searched the index in the back volumes of GLEANINGS from Vol. 1 to Vol. 46 and found more or less about sunflowers as a honey plant. Some seasons they have yielded considerable quantities of honey; at others, little or none. One California writer recently told us that his crop of white honey was seriously injured by the mixture of dark honey from sunflowers. He said the sunflowers gave an unusual yield that season. I found in our neighborhood a little patch of sunflowers comprising perhaps an eighth of an acre in full bloom. When the weather is warm enough it is well covered with bees, and they gather both honey and pollen from the flowers. I am told that an experiment station somewhere in Canada put out a bulletin some time ago in regard to sunflowers for silage, and gave it a very high recommendation. If any of our readers can give me full information in regard to sunflowers for both milk and honey I shall be especially pleased.

TRANSPLANTING CORN.

On page 437, GLEANINGS for July, I gave you a picture of the way I tested my seed corn; and you will notice three grains were placed opposite each ear of corn. Well, when these three grains got to be four or five inches high they looked so handsome and thrifty, owing largely to the rich compost and frequent watering, it seemed too bad to destroy them; and, as we had some ground furrowed out for planting early potatoes, I took them up and planted them

out as we do cabbage plants, about the proper distance for field corn. Well, about the middle of August I had beautiful hard yellow ears ready to gather for my chickens. Of course, it would not pay to fuss thus with field corn unless there was some particular reason for wanting some nice new field corn extra early, say for grinding in your little home mill to have home-made corn meal, which, by the way, we think a great deal nicer when it is made from corn right from the field. Well, at the time I tested the field corn I also tested sweet corn for planting in the garden; and this sweet corn was two weeks ahead of that planted outdoors. I think it is a very good idea to have a little sweet corn started indoors and transplanted in this way so as to get a little ahead of the regular crop.

Just now the agricultural papers are urging the farmer to select his seed corn from the field, especially in view of the scarcity and high price and *poor quality* that prevailed last spring. Well, in localities where there is trouble from early frost the transplanting outlined above, just for securing seed corn, will, I am sure, pay big. Give the little corn-plants some of your best ground and give them the best care. Why, one of our agricultural papers just now has said that a farmer might make as high as \$75.00 a day in taking time at just the right stage of the maturing corn to select the very best ears for planting.

SOAPSUDS AS A FERTILIZER.

If you will turn to page 438 of the July GLEANINGS, you will find a picture of a bed of extra-early potato plants. At the upper lefthand corner there is an indistinct view of some little plant boxes. These boxes contain little plants of Netted Gem cantaloups. After the potato plants were removed from the bed, four hills of melons were taken from these little boxes and put in place of the potatoes. Well, in our locality we had, along about the first of August, a tremendously hot and dry spell. For a few days it seemed as if the garden was going to be an almost utter failure. With the tremendous heat we had, both day and night, the Grinnell sprinkler did not seem to amount to much. The fierce heat of the sun dried up the water, no matter how much we put on; and the water from our waterworks this year has been unusually expensive. Well, as these four hills of melons in that potato-plant bed were close by where Mrs. Root does the washing, once a week they were treated to a tubful of strong soapsuds. I wanted to give soapsuds a good test (while potash is so scarce)

in regard to its value as a fertilizer. Well, these four hills of melons, two plants in a hill, have now nine Netted Gem cantaloup melons, about the finest I ever grew; but as they are not yet ripe, we have not tested the quality.

Just a suggestion here: These fine hills may not be altogether the result of the pot-ash. I think I have mentioned before, that, unless I have some kind of exercise in the garden to start the perspiration every forenoon and afternoon, I do not feel "real spry." Mrs. Root frequently scolds about my getting my shirt and underwear so badly soiled, even if I do have a sponge bath every night before I go to bed. Of course, working in the garden accumulates quite a little dust, especially during extremely hot weather, to go along with the perspiration.

Well, is it not likely that this same perspiration is valuable as a fertilizer? The good Book says, "In the sweat of thy face shalt thou eat bread;" and I have sometimes thought it fell on me rather heavily, especially in my old age. The color of the water in a tubful of soapsuds indicates that there is more or less "fertility" in it of some sort; and one of the morals of this story today is that, instead of letting the soapsuds of washday go down into the drain, you should put it on your melons or some other garden stuff you want to get under "high pressure." I believe the best time to put on soapsuds is just about sundown or a little after; then when the ground gets just dry enough, mellow it up again with a hoe.

By the way, I have sometimes mentioned my fruit suppers which I enjoy so much. Well, nice cantaloups and "baby water-melons" seem to fit in very nicely in that fruit supper; and I feel very much better after a supper of fruit and melons, and nothing else, than when I go to a picnic and eat all sorts of stuff so as not to appear to be singular or different from other people.

A NEW VARIETY OF TALL WHITE SWEET CLOVER THAT FURNISHES HONEY IN 90 DAYS.

Some time about the last of April Prof. H. D. Hughes of the Iowa Agricultural Station, Ames, Ia., sent me a few seeds of a new white sweet clover that he thought might do wonderful things, not only for beekeepers but for stock-growers as well. I planted a few seeds at once in a box, gave them good care, and set them out in the garden some time in May. Notwithstanding the terrific heat and drouth they

began to bloom in about 90 days; and just now, this 14th day of September, some of them are as high as my head, and covered with bees and bloom. On some of the plants the seeds are sufficiently matured so they may be gathered and planted; and if any reader of GLEANINGS will send me an *addressed* and stamped envelope, I will mail him a few seeds. If planted at once, in most localities, in good, rich soil, I think they will make enough growth to stand the winter. A little mulching may help matters.

And there shall in no wise enter into it anything unclean, or that maketh an abomination and a lie.
—REV. 21:27.

Great victories are coming just now so thick and fast that I begin to think I shall have to stop astonishing the good friends with temperance news; for before I can get it before you in print it is news no longer, for everybody has heard of it and more besides.

Just a few days ago we were congratulating ourselves on having national prohibition by 1920; and with the progress being made it seemed as if it *might* come earlier—possibly by July 1. Then a little was said about May 1. Then the papers talked about Jan. 1, and finally in the *Cleveland Plain Dealer* of Sept. 7 we read the announcement that on Dec. 1, 1918, the brewers of the United States would shut up at once, and during the war; and this victory is not exactly like the one in regard to the distilleries, for beer can not be made up ahead, as it spoils in a little while. I am ashamed to acknowledge that I know something about it "by experience."

And now while we are rejoicing and thanking God for what is going to happen Dec. 1, the different breweries thruout the land are announcing that, as they have got to quit any way, they might as well commence to line up at once. I have since run across another statement, I think to the effect that over 5,000 saloons in the city of New York have also concluded to commence, at once, to wind up. A saloon without beer would be like Hamlet without Hamlet.

May the Lord be praised for the news at hand this 13th day of September; and nobody knows just what great things may be done before your eyes rest on this printed page.

Is there a voter in the State of Ohio who reads these Home papers who will not strain every nerve to be on hand on the coming election day, Nov. 5, and *vote dry*?

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohme, er & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Well ripened clover honey in 60-lb. cans, also buckwheat in kegs. Any amount up to carload. E. L. Lane, Trumansburg, N. Y.

FOR SALE.—Well ripened buckwheat honey in 160-lb. kegs, price 21c per pound. Seward VanAuken, Delanson, N. Y., Rt. 3.

FOR SALE.—Our new crop honey, clover-bass-wood, blended by the bees on the hives. One of the best lots on the market. It is packed in new 60-lb. tin cans, two to the case. Sample 25c to be deducted from the first order.

D. R. Townsend, Northstar, Mich.

RASPBERRY HONEY.—Blended with a small amount of goldenrod honey. It is thick, ripe, rich, and delicious, first class in every respect for table use. Put up for sale in 5-gal. tin cans, and 1-gal. cans. Price in 5-gal. cans, \$15.00 a can; in 1-gal. cans, \$3.50 a can. Sample by mail for 20c, which may be deducted from order for honey.

Elmer Hutchinson, Lake City, Mich.

RASPBERRY HONEY.—This honey has just enough buckwheat honey mixed with it to color it some. It is from one of the Hutchinson apiaries, and has all the fine qualities and flavor that the Hutchinson honey is noted for. It is put up for sale in 60-lb. cans. Price, 25c a lb. Sample by mail 20c which may be applied on purchase of honey.

John Hutchinson, Lake City, Mich., R. D. No. 2.

HONEY AND WAX WANTED

Small lots of off-grade honey for baking purposes. C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

Comb honey wanted, address 153 Box 323, White Plains, N. Y.

Cash at your bank for carlots and less of comb and extracted honey.

Wesley Foster, Boulder, Colo.

WANTED.—Light extracted honey, state price f. o. b. your station.

I. J. Stringham, Glen Cove, N. Y.

WANTED.—Comb and extracted honey, car lots and less. Mail sample, quantity and price.

W. Morris, Yonkers, N. Y.

WANTED.—Comb and extracted honey, also beeswax. Send samples. C. S. Fryer, 386 Halsey St., Portland, Ore.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston.

M. V. Facey, Preston, Minn.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations.

M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. State particulars by mail and sample of extracted.

Hoffman & Hauck, Inc., Richmond Hill, N. Y.

WANTED.—2,000 pounds sweet or white clover extracted honey. Send sample and price. Geo. Herrick, 11225 Vernon Ave., Chicago, Ill.

WANTED.—Well ripened amber and clover honey; state price, how packed and send sample. L. P. Zimmerman, 436 E. Market St., Louisville, Ky.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

We are in the market for honey and beeswax. Send your best price on comb honey and a sample of extracted honey. State quantities you have, also style, size, and weight of package or section. Charles Israel Bros. Co., Inc., 486-490 Canal St., New York City.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 36c cash, 38c trade. We will pay 1 to 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.

The A. I. Root Co., Medina, Ohio.

FOR SALE

HONEY LABELS.—Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

SEND TODAY for samples of latest honey labels. Liberty Pub. Co., Sta. D. Box 4E, Cleveland, Ohio.

My entire bee and queen business for sale at once. If interested apply to M. Bates, Greenville, Ala., R. D. No. 4.

FOR SALE.—40 lbs. thin super foundation, in lots of 5 lb. or over, 70c per lb. E. S. Robinson, Mayville, N. Y.

FOR SALE.—Hand-gathered sweet clover seed now ready. Write for prices. E. C. Bird, Boulder, Colo.

FOR SALE.—One Dadant's uncapping can, good as new, \$7.00; 5 cases 60-lb. cans, used once, \$25. Mason, Mechanic Falls, Me.

FOR SALE.—Cowan rapid reversible extractor, \$18.00. Single comb white leghorn cockerels, \$1.00. Lorenzo Clark, Winona, Minn.

Pennsylvania Distributors for Root Bee Supplies, save time and transportation expense on all standard hives, sections, etc., at catalog prices. Prothero, Bailey & Goodwin, Dubois, Pa.

FOR SALE.—Good second-hand 60-lb. cans, two to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—All or part interest in a well-established queen-rearing business. Scarcity of help reason for selling. Can not keep up with what help I have left. 16 miles from Corpus Christi (The Naples of the Gulf), high healthy location. A good proposition for the right party with small amount of capital. Reference furnished. Nueces County Apiaries, Calallen, Texas.

BOOKS AND BULLETINS

The U. S. Dep't of Agriculture has just issued two bulletins on the subject of wintering bees, embodying the latest ideas of Dr. E. F. Phillips and other apiculturists in the Bureau of Entomology at Washington. One of these bulletins is entitled "Wintering Bees in Cellars," the other, "Protect Bees from Cold." Ask the U. S. Department of Agriculture, Washington, D. C., for these two bulletins.

"THE PEARCE NEW METHOD OF BEEKEEPING."

The majority of beekeepers have picked up methods and suggestions from their predecessors or contemporaries, possibly adding a point or two themselves, and have gradually pieced all together into what they regard as the very best plan of management. Such a system is that given in "The Pearce New Method of Beekeeping." The main idea of the booklet is to have colonies unusually strong, from 100,000 to 200,000 bees, always provided with an abundance of room by being kept in two-story Langstroth hives, which are housed thruout the year in a suitable building. Mr. Pearce is also an advocate of that trouble-brewing "let-alone plan." He leaves them in the fall, with many colonies weighing as much as 100 pounds; then on the first of May he puts on the supers. He says: "Put as many as four or even more honey cases filled with foundation on top of these two hives. Be sure to have enough, letting them go as they please till near the first of November." If this advice is followed indiscriminately, it seems to us, it must result in much chilled brood and many lost colonies. Having such quantities of room, Mr. Pearce holds that swarming will be prevented. Therefore he suggests that anyone desiring increase place on the old stand a new hive of empty combs or foundation, together with a new queen and the four outside frames from the old hive, the four frames of empty combs or foundation removed being placed in the middle of the old brood-nest which is moved to a new location. By so doing, however, the queen would sometimes be treated kindly and sometimes she would be killed. To remove honey from the supers, he places four or five supers over an empty hive arranged with an escape-board above and a bottom-board below. In the spring he uses the Alexander plan of caring for weak colonies, only

instead of removing the upper colony at the end of three weeks, he only removes one comb with the queen, thus making a nucleus, leaving all the rest together in one big colony. Under the heading, "Foul Brood," it is evident that Mr. Pearce is referring only to the American type. His remedy is to put a new hive of foundation on the old stand and smoke the bees until most of them have run into the new hive. The queen is placed in the new hive and the hive covered with a bee-escape board, after which the old hive of brood is placed above. He does not mention the possibility of the escape becoming clogged with dead bees, nor the impossibility of removing the diseased hive to examine the lower one. Of course, if the upper hive were jarred, as it would be if removed, the bees would load up with diseased honey and carry it into the clean hive below. For rearing queens the booklet advises the beginner to feed his best colonies heavily so they will build queen-cells and swarm. Seven or eight days after the first swarm issues he would cut out queen-cells and return them to the hive to hatch, after which they would be placed in nuclei. We regard this as poor advice to be given a beginner. Under certain weather conditions, it would be found that the cells would be all torn down at the end of seven or eight days. Even if they were not, just think of all the trouble and confusion that would arise from all these cells maturing at different times. On the whole, we cannot refrain from the warning that what Mr. Pearce can do, the beginner may not and probably will not be able to do. We accordingly suggest that students of the book absorb the good in the pamphlet, namely, the idea of having large colonies with plenty of room and quantities of stores for winter, and that he discard such suggestions as the giving of four or more supers of foundation the first of May, or the rearing of queens by the natural swarming plan. We know a veteran beekeeper who recently commented on the "Pearce New Method," by saying that if a beginner were to ask him about the "method" he would probably reply like this: "Whatever is good is not new; and whatever is new is not good. Practical beekeepers are generally ready to adopt what is good, but altho Pearce's management has been published several years I don't know of any one who keeps bees on a considerable scale who has adopted it. It may be a good thing for you to let alone, son." (Published by Joseph A. Pearce Co., Grand Rapids, Mich. Price, \$1.00.)

Cans and Shipping-cases

We have a fine stock of 5-gal. cans and shipping-cases; also comb foundation, extractors, honey-tanks, etc.



Quick Shipments.

KRETCHMER MFG. CO. Dept. G, Council Bluffs, Iowa

AROUND THE OFFICE

M.-A.-O.

J. L. Byer ain't said nothin' more about my comin' up there fishin' with him. Perhaps he's grown cold onto me. It's allays been this way—when a feller's down he's pretty much way down and generally pretty much alone by hisself. When Danel was in the lions' den it isn't recorded that there was a whale of a whole lot of people crowdin' up to help him out any. Yet he was all right and the rest all wrong, and he was a pretty skookum man, too. I can stan it if Byer can.

* * *

August was the poorest month I ever see for fishin' and also too the worst for bees stingin'. I got stang time and time and again that month and I couldn't get a bass nohow. Take these two things together both all to oncet and it makes it about the hardest time of year to keep from utterin' some real language and talkin' the way you feel like. It's the hardest time of year for a reformed language user that I know of. That's so, bi Sulphide, too. Bisulphide is just as good a word as church or Sunday-school, and I may just have to use it (separated a little mebbe) sometimes, and I don't want any adverse criticisin', either. When

(Continued on next page)

BEEKEEPERS' SUPPLIES

A Good Stock of the

Lewis Beeware

and

Comb Foundation

Is at your command at
factory prices.

Western Honey Producers
Sioux City, Iowa

We have a market for your honey and
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Complete Line of

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Catalog on Request

F. Coombs & Sons, Brattleboro, Vt.

WANTED SECTION HONEY

in Carlots and less
than Carlots. . . .

Correspondence Solicited

J. E. Harris

Morristown, Tennessee

Dont Send a Penny

These Len-Mort Work and Outdoor Shoes are such wonderful value that we will gladly send them to you at once, no money down. You will find them so well-made and so stylish and such a big money saving bargain that you will surely keep them. No need to pay higher prices when you can buy direct from us. Why pay \$5 and \$6 for shoes not near so good?

Great
Shoe
Offer



This shoe is built to meet the demand of an outdoor city workers' shoe as well as for the modern farmer. Built on stylish lace Blucher last. Special tanning process makes the leather proof against the acid in milk, manure, soil, gasoline, etc. They outwear three ordinary pairs of shoes. Very flexible, soft and easy on the feet. Made by a special process which leaves all the "life" in the leather and gives it a wonderful wear-resisting quality. Double leather soles and heels. Dirt and water-proof tongue. Heavy chrome leather tops. Just slip them on and see if they are not the most comfortable, easiest, most wonderful shoes you ever wore. **\$3.85** for shoes on arrival. If, after Pay only careful examination you don't find them all you expect, send them back and we will return your money. Order by No. X15012.

SEND your name and address, and be sure to state size you want. You be the judge of quality, style and value. Keep them only if satisfactory in every way. Be sure to give size and width.
LEONARD-MORTON & CO., Dept 2051, Chicago

Around the Office—Continued

I use it I just mean bisulphide and nothin else at all whatever. If I can't say bi Sulphide once in awhile in bee stinging times and when fish aint a bitin, I am likely to go backslidin on language reform forever. A feller's just got to have a little vent when the bees are a peckin it to him, and no sympathy at home or over here around the office either one.

* * *

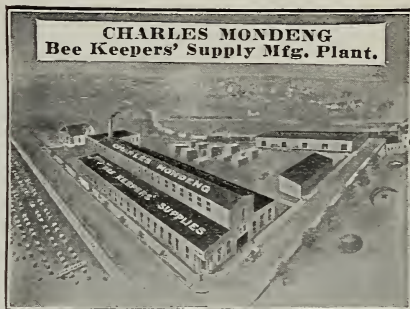
* Some anonymous sunofagon has tried to sass me by sendin in this one: "Teacher—Name a fisherman mentioned in the Bible. Pupil—Ananias." That may have application to my fishin friend, Ab Lutz, or to F. L. Mason up at Mechanics Falls, Maine, but not to me, so it don't.

* * *

"Last summer I got mad, and I paid right out \$10 for a swarm of bees, hive, super and foundation, and as I didn't know a thing to do to 'em, they made me 75 pounds of fine honey; but since I've been reading Gleanings, I've learned so many things to do to bees (and done 'em, too) that the little fellows look pretty sick, and the results of 15 years of bee efforts are all going to smash. Next time I'm going to read the M.-A.-O. pages and cut out the Roots—if I ever get another start in bees, so I am.—C. E. Weston, Inkon, Ida. [Bi Sulphide, that's what's puttin fat onto my ribs. Just to think of havin people all over this country and out in Idaho preferrin my kind of beekeepin combined with fishin to the Roots' and Doe Miller's and Hi Mogul Phillips' beekeepin. I am feelin better. As my old Dad used to

(Continued on next page)

\$30,000 WORTH OF Bee Supplies



All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price-list. I can save you money.

Will Take Beeswax in Trade at Highest Market Price.

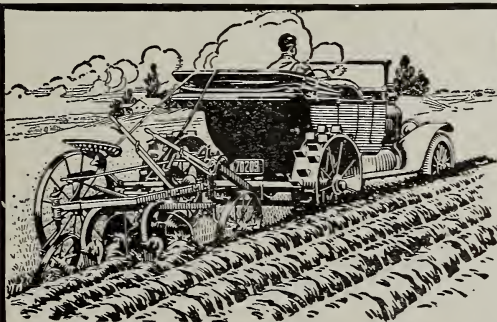
Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

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MAKES a practical tractor out of a Ford or most any other car. Easily attached to or removed from the car in thirty minutes. No holes to drill, no springs to remove. **Practical, Durable, Reliable.**

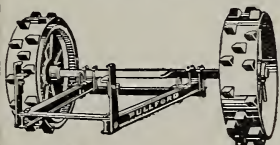
New FAN DEVICE Prevents Heating

Hundreds WORKING NOW for Satisfied and Enthusiastic Owners

Pulls plows, harrows, drills, mowers, binders, hay loaders, road graders, wagons, trucks, etc. Steel wheels with roller bearings and tires 10 inches wide, two pairs of hardened Vanadium steel pinions, one for plowing and one for hauling speed. A tractor with the reliability and durability of the Ford car. Prompt shipment. Write for catalog.

It was the Pullford attached to Ford cars pulling two 12-inch plows running on Kerosene, equipped with new fan device, that made a most successful demonstration at Fremont, Nebraska.

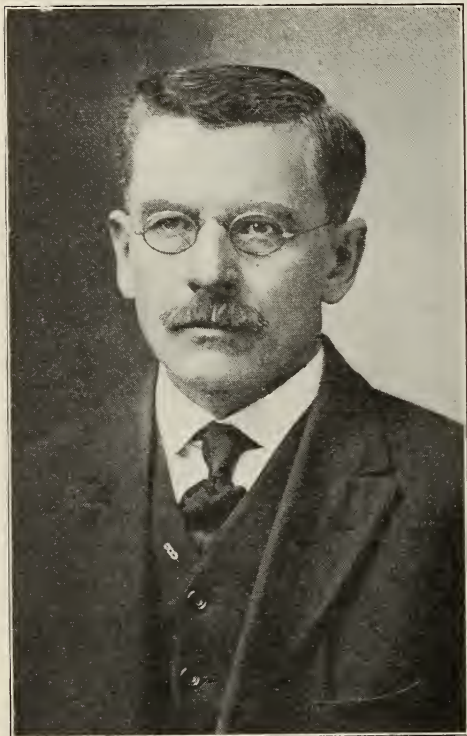
PULLFORD COMPANY, Box 23C
Telephone No. 84 Walton Heights, QUINCY, ILLINOIS



Around the Office—Continued

say, that feller Weston is solid on the goose.—M.-A.-O.] * * *

This here is Mel Pritchard, our queen-rearer and skunkologist. He's all duded up in this picture. To look at him here, you



Mel Pritchard, Philosopher and Sk. Ologist.

wouldn't think he would go out of his way to pick onto a skunk, would you? He will tho, so he will. But he knows a lot more things. He knows more about queen bees, bugs in general and all outdoors than most

(Continued on next page)

BEES Tested Italian Queens, \$1.50

We furnish full colonies of bees in single-walled and double-walled hives. Nucleus colonies and bees by the pound. Write for what you need.

I. J. Stringham . . Glen Cove, N. Y.

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**
306 E. 5th St., Canton, O.

Queens of MOORE'S STRAIN of Italians

PRODUCE WORKERS

That fill the super quick
With honey nice and thick

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, \$1.25; six, \$6.50; 12, \$12.00. Select untested, \$1.50; six, \$8.00; 12, \$15.00. Safe arrival and satisfaction guaranteed. Circular free.

J. P. MOORE,
Route 1, Morgan, Ky.

Queen-breeder

BEE-SUPPLIES

FALCON LINE

We carry the largest supply
in our section. Send us
your inquiries.

Lowest Prices, Quality Considered

C. C. Clemons Bee Supply Co.

128 Grand Ave.

KANSAS CITY, MO.

Perdue's Southern-bred Italian Queens

that resist disease well — those that resist disease must be hardy, prolific, and hustlers; and they are superior to many as honey-gatherers, and mated for their gentleness. Why not try them and be convinced that you have been losing by not buying them the three bands.

Untested,	one,	\$.75;	six,	\$4.25;	12,	\$8.00;	per 100,	\$60.00
Sel. Untested,		1.00		5.00		9.00		
Tested,		1.50		8.75		17.00		

Satisfaction guaranteed

W. T. Perdue . . Rt. 1, Ft. Deposit, Ala.

Don't Lose Any More Wax

Beekeepers: Let us print you some cloth or manilla tags to go on your shipments of wax with your name and address. That is the only safe way to be sure your wax isn't lost in transit.

Prices on Application.

The A. I. Root Co., Medina, Ohio

"Special Crops" A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. \$1.00 per year. Sample copy 10c. Address
Special Crops, Box G, Skaneateles, New York

Around the Office—Continued

any feller I know of just now. He's a knowledgeable cuss all round. I call him Philosopher—when he lets me get near enough to him to call him anything. I am about as congenial and satisfyin to him as a red rag is to a bull. He says I've lied about him and the skunks, but I ain't so very much, so I aint, and he knows I aint. Notwithstandin this, I say Mel Pritchard knows a lot of things and looks like a owl. He's got a ant theory that is a astonisher, and he's tryin' to raise ants like bees and make 'em a blessin to man. I'll bet he's right, too. I tell you again Mel Pritchard is a smart sun-of-a-gun, and he aint bad lookin' at the photographer's.

* * *

A earnest seeker after truth wrote into Gleanings not long ago sayin: "How do you determine the longevity of bees? I have seen it stated in Gleanings that queens were bred whose bees were long-lived." It's as plain as the nose on the Kaiser's oldest son's face that this man was seekin real information and clear light on a uncertain bee subject, and also distrustin under his vest some claims of some queen rearers. Waal, what did he get?

His question was put up to Iony Fowls, now one of the chief spokes in Gleanings brains—and she does know a whole lot—and she ups and writes to this man F. R. Davis at Bangall, N. Y., tellin him if he'd take a queen of a different race than hisn and introduce her it would be easy to note how long a time afore the first strain of bees disappeared from the hive. Then she adds this to him: "We must admit that this method of determining the longevity of bees is but seldom employed, and in general practice we fear that the longevity of bees is more or less a matter of guess work. Of course, there are queens that continue to lay

(Continued on next page)

To Our Subscribers:

After this date, Oct. 1, all combinations and premiums heretofore offered with subscriptions to Gleanings in Bee Culture have to be withdrawn. This is made necessary by regulations governing subscription offers of all magazines, issued by the Pulp and Paper Section of the War Industries Board, effective Oct. 1. Accordingly, we give our readers notice to consider any and all of our previous subscription combination and premium offers withdrawn. We expect that the yearly subscription price of Gleanings (straight subscription) may be continued at \$1.00 as heretofore. Watch for later announcements.

GLEANINGS IN BEE CULTURE,
The A. I. Root Co., Publishers.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk.
Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine.
J. B. MASON, Manager.

New England Beekeepers

will find a complete line of supplies here. Order early and avoid delays. Write for catalog.

H. H. JEPSON

182 Friend Street

Boston, Mass.

Liberty Honey Labels

have led all others for more than 9 years. Samples will show you why. . . Our catalog is free. Send for it today—NOW—while you have the address before you. . . The war has not affected our prices.

Liberty Co., Sta. D, Box 4009, Cleveland, Ohio

Full Values in "FALCON" Beekeepers' Supplies

For the last forty years during our manufacture of "FALCON" supplies it has been our endeavor to place upon the market the best possible line of supplies. And we pride ourselves in having accomplished this. "FALCON" supplies have not only been recognized as the best in this country, but also a leader in other countries. Nothing expresses the superiority of the "FALCON" ware better than the many kind and pleasing words we receive from our satisfied customers, and the ever-increasing demand for "FALCON" supplies.

The season is drawing nearer and beekeepers should endeavor to order early. By making up your wants now you will be better fitted to go into the season with a view of not only obtaining a bigger crop but to facilitate matters thruout the season. If you will make up a list of requirements for quotation we shall be glad to quote.

Red Catalog, postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from

Around the Office—Continued

well even in the fifth year. It would seem quite probable to us that the progeny of such a queen would be long-lived, and if one continued breeding from such queens they might in time produce bees with much greater longevity than stock from which they originally started."

Those are the illuminatin beams of information Davis got from Iony Fowls—and I'm guessin he got about all there is radiatin on the subject, too. But it didn't seem satisfyin to one high muckamuck around the office, so he put off to the queen rearin yard for more penetratin light on the subject and got this from old Philosopher up there: "The longevity of bees is determined by the work they do. Those that hatch at the beginning of the honey flow only live about seven weeks while those that hatch in the fall live thru until spring—seven months. Some bees probably have more vitality than others and can work longer in summer and also winter better. I know of no way of distinguishing one from the other except by observing these qualities. Breeding from queens five or more years old, which would naturally be rather low in vitality, I would think would have a deteriorating effect on their progeny which would more than offset any gain in the line of longevity."

Waal, when this enlightenin elucidashun filtered in from the queen-rearin yard, it started every disputatious sunofagon around the office agoin it on this ere subject of longevity, and there was more talk than you could jam into a session of the great American Congress—and that's some. All the authorities were looked up—Doc Miller, A B C and X Y Z, Doc Phillips, Pellet, Quinby, Langstroth, et cettery. Nothin doin. More disputin all the time, till finally Iony Fowls came down on the queen-rearin' yard's wisdom with this one: "If certain varying combinations of factors produce a given result, the presence of that result does not prove the existence of each one of the factors. In other words, altho longevity may be a factor in the production of good honey gatherers and good winterers, there are also other important factors and the fact that a colony produces a large amount of honey and winters well, does not necessarily prove that they have longevity. If he thinks it does then the burden of proof lies with him. A mere statement should not suffice."

Take that in your pipe and smoke it will you, Mel, if it aint too strong.

But what I am a reviewin the whole case for is to tell that seeker after pure truth, Mr. Davis of Bangall, N. Y., that these old bee wiseakers don't probably know a darned thing about it, so they don't. [See, I had the printer scratch out that word durnd.]

I agree with Mel, and that almost ought to settle it, so it had,—only I don't know what Mel means.

Dr. Miller QUEENS

We are again rearing queens from mothers supplied by Dr. Miller from his apiary. These bees are proving to be very gentle as well as hardy and resistant to Foul Brood. Two queen-breeders not interested in us at all have declared them to be the gentlest bees they ever saw. Our list of customers that demand Miller Strain is growing fast. Remember that we are the only breeders that get breeders direct from Dr. Miller. Can you find a man more able than Dr. Miller to select your breeding queens? Besides that he has the material that he has been working on for over fifty years to select from. Safe arrival and satisfaction guaranteed.

One untested, \$1.00; 12 for \$10; 25 or more, 75c each.

The Stover Apiaries Penn, Miss.

Formerly of Mayhew, Miss.

QUEENS

Bred for Honey Production

That are gentle and hardy. Reared from the best mothers by the best known methods. We will have 2000 mating nuclei in operation by June 15th.

We may have some pound packages to offer after June 15th but are not in position to say until about June 10th to 15th. Safe arrival and satisfaction guaranteed.

One untested, 75c each; 12 to 100, 60c each. Full colony in 8-fr. hive with tested queen, \$9.00; 10-fr. hive, \$10.00. Can make prompt shipment of these.

The Penn Company Penn, Lowndes Co., Miss.